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"In September, 1919, it was decided to try the effect of preventive inoculation in the Boarding House of a large Public School. The House Mistress was exceedingly interested in the scheme, and was able to obtain the permission of the majority of the parents.

"Each child received five injections in the course of the year, and the preparation used was the Anti-Catarrh Vaccine made in the Inoculation Department, St. Mary's Hospital, and supplied by Messrs. Parke, Davis & Co. The first three injections were given at the beginning of the Autumn term at weekly intervals, the maximum dose, 0.5 c.cm. to 0.75 c.cm., according to the age of the child, being reached on the third occasion. A slightly smaller dose was administered at the commencement of the Spring and Summer terms.

"The results were so encouraging that the procedure has been continued regularly, and the record for the past four years shows that *not one girl* who had been duly inoculated *missed a single day at school* owing to a cold or influenza.

"The average number of girls in the Boarding House is 40, and 80 per cent. of these were inoculated. In the case of those whose parents did not consent we have notes of nineteen who were confined to bed from colds and influenza, and of two who had pneumonia.

"It is an interesting fact that the girls in the Boarding House are in contact with more than 400 daily pupils who also attend the School, and who come from all parts of London.

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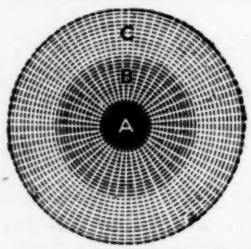

Diagram represents inflamed area. In zone "C" blood is flowing freely through underlying vessels. This forms a current away from the Antiphlogistine, whose liquid contents, therefore, follow the line of least resistance and enter the circulation through the physical process of endosmosis. In zone "A" there is stasis, no current tending to overcome Antiphlogistine's hygroscopic property. The line of least resistance for the liquid exudate is therefore, in the direction of the Antiphlogistine. In obedience to the same law exosmosis is going on in this zone, and the excess of moisture is thus accounted for.

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Remarks
ON THE
SURGICAL TREATMENT OF GASTRO-DUODENAL ULCERATION.*

BY
CHARLES A. PANNETT, M.D., F.R.C.S.,
PROFESSOR OF SURGERY, UNIVERSITY OF LONDON; SURGEON TO ST. MARY'S HOSPITAL.

THE evolution of a gastric or duodenal ulcer is a calamity in a man's life. It attacks during the period of greatest vigour and usefulness. Intervals of complete freedom alternate with weeks of invalidism so that the patient's work is seriously interrupted, and with the passage of time the periods of relief become of less and less duration until persistent incapacity turns him into an encumbrance rather than a useful member of society. Physically he suffers from malnutrition, whilst mentally his fortitude is sapped by the continuously recurring pain. Added to all this there is the ever-present risk of a perforation into the general peritoneal cavity, a catastrophe which exacts a heavy toll. Working in a hospital it is difficult to form an estimate of the frequency of occurrence of gastric ulceration. But although we always have in the wards cases of this disease, I believe it is relatively rare; or perhaps it would be better to say that of all the cases of dyspepsia which consult the practitioner only a small percentage have an ulcer. This small proportion, however, must be recognized, that by treatment such patients may be saved from chronic invalidism.

THE CHOICE BETWEEN MEDICAL AND SURGICAL METHODS.

A most unfortunate controversy has been waged over this question of treatment, so that the impartial observer may be forgiven if he gets the impression that there is a real conflict between the teaching of surgery and medicine. When a patient in the early stages of the malady presents himself, the necessity of choosing between medical or surgical treatment never arises. Without exception, medical and dietetic measures should be instituted. Notwithstanding most thorough and painstaking medical treatment, some cases will prove refractory. Amongst these a very large proportion will be definitely cured by some operation. Critics sometimes point to the failures of surgery in this disease, and try to argue that patients would often be as well off without the administrations of the surgeon. Let us not forget, however, that surgery is only practised properly where medicine has failed, and that amongst such patients the number restored to complete health forms a very creditable percentage.

DETECTION OF CASES WHERE MEDICAL MEANS ALONE ARE LIKELY TO PROVE INEFFECTIVE.

Why are some ulcers resistant to the best medical treatment? The answer is bound up in part with the imperfectly understood question of the etiology, but also is concerned with the pathology of long-existing ulceration. Herein lies the secret of the possibility of curing gastric ulcers by surgical means. It is helpful to consider the elementary facts of gastric and duodenal ulcers. They only occur in those parts of the alimentary canal where active gastric juice has access, and even in this area there are selective sites for the ulcerative process. This is more pronounced in the stomach than in the duodenum. The pathologists tell us that histologically these ulcers show characters of their own, and there is no doubt that they are the result of a true digestive process occurring in a part of the stomach wall damaged in some other way.

Normal stomach wall is resistant to gastric digestion, and recent researches[1] have shown that this property is possessed by such other normal tissues as have been subjected to experiment. People have attempted to show that in gastric ulcer there is a lowering of the antipeptic power of the stomach mucosa. This is not true, at least at the time when operation is usually performed. Wounds of the stomach heal quite readily. I have seen a resection of the stomach *post mortem* nine days after operation, in which to the naked eye complete healing had taken place. We do not often get a chance of inspecting our cases so soon after operation, but we have no reason to doubt that the ordinary gastric operation heals as quickly. If this were not so, operating upon the stomach would be quite a futile procedure, for we should only substitute a much larger ulcer for the one we had removed. In the evolution of gastric ulcer there probably is a temporary loss of digestive-resisting power in the gastric mucosa, but some other factor is present which prevents the ulcer from healing when the resistance of the tissues to peptic assault returns once more to normal.

There would seem to be two reasons why a gastric ulcer refuses to heal. One is infection, the other is the presence of extensive surrounding fibrosis, set up by the extremely irritating gastric juice. Rosenow believes that all gastric ulcers are blood stream streptococcal infections which have their primary origin in diseased teeth, tonsils, or some other focus; whilst the Leeds school think that infection arrives by way of the lymph channels from the right iliac fossa. In the only three cases where I made an attempt, I obtained streptococci from within the tissues forming the margins of gastric ulcers. Infection undoubtedly plays its part in delaying or preventing healing, but it has by no means been proved to be the cause of the primary lesion. The widespread fibrosis around a gastric ulcer extends into neighbouring structures—the liver, pancreas, lesser omentum—converting such tissues into a rigid unyielding mass which cannot contract down. At this stage the ulcer is as incapable of healing as is a callous leg ulcer adherent to the tibia or a cavity in bone itself. The hindrance here is a mechanical one.

When the disease is not of recent origin is it possible to pick out those ulcers in which it is worth while to try medical treatment and those in which such treatment is certain to meet with failure? Sometimes this can be done with certainty by *x*-ray examination. The number of positive diagnoses of gastric ulcer which can be made by radiographic examination increases much with the skill and experience of the investigator. (Figs. 1 and 2.) But allowing

FIG. 1.

FIG. 2.

FIGS. 1 and 2.—Ulcer of lesser curvature, showing Haudek's diverticulum, spasm opposite the ulcer, and how the opaque material remains in the ulcer crater as the stomach empties.

for this, there are still some cases where an ulcer may be present and remain undetected. Assuming that the ulcer crater can be visualized, we are able to come to a pretty accurate conclusion as to whether surgery is called for or not. Only the smallest craters which have a spiked extremity and penetrate no further than the mucosa will heal over. I think it must be conceded from *x*-ray observations before and after medical treatment that a few ulcers with demonstrable craters will disappear. The chance of this happening is not a great one. When, however, the crater is of a certain size, and when the ulcer is adherent posteriorly, as can sometimes be demonstrated by the stomach shadow remaining fixed at this point on altering the posture of the patient, we can be certain that so much fibrosis has taken place around the ulcer that spontaneous healing is no longer possible. We shall not commit many errors if we make it a rule to operate upon every gastric ulcer in which a blunt-ended Haudek's diverticulum is demonstrable.

[3350]

* Given before the Plymouth Medical Society, December 13th, 1924.

FIG. 3.

FIG. 4.

FIG. 3.—Normal duodenum, showing filled cap and opaque material passing through second part.

FIG. 4.—Ulcer of anterior wall of duodenum; large penetrating ulcer on posterior wall; flattening of left border of cap and ulcer crater.

FIG. 5.—Two ulcers of duodenum; distortion of cap.

FIG. 6.

FIG. 7.

FIG. 6.—Ulcer of anterior wall and one on posterior wall of duodenum; distortion of cap. This patient also had a persistent fleck.

FIG. 7.—Ulcer of anterior wall and penetrating ulcer of posterior wall of duodenum; distortion of cap.

FIG. 8.

FIG. 9.

FIG. 8.—Ulcer of upper border of duodenum, showing fleck remaining in ulcer crater after first part of the duodenum had contracted.

FIG. 9.—Penetrating ulcer of duodenum which was drawn out into a diverticulum by fibrosis.

A most important question is this: Shall we decide against operative treatment whenever the *x* rays fail to reveal an ulcer in a suspected case? This is most difficult to answer. In some clinics abroad over 90 per cent. correct *x*-ray diagnoses are claimed, but my experience is that we in this country cannot reach such perfection—at least in hospital practice, where repeated re-examinations and serial methods are precluded by pecuniary reasons or want of time. Often, though the actual ulcer cannot be seen, because perhaps the crater, being plugged with mucus or food, admits no opaque material, collateral indirect evidence of an organic stomach lesion is obtained by *x*-ray examination—such, for example, as spasm of the pylorus or greater curvature. In such cases we are influenced above all by the clinical history, which may be so characteristic that no doubt can remain that we are dealing with an actual organic lesion.

THE PROBLEM IN DUODENAL ULCERATION.

The general pathology of duodenal ulcer is similar in every way to that of gastric ulcer, except that cancer never seems to be grafted into an ulcer in this situation. It occurs, of course, almost solely in the beginning of the duodenum, which physiologically may be regarded almost as part of the stomach. Nevertheless, there are special features about duodenal ulcers which render our attitude towards them a little different. On the whole they are of a smaller average size than the gastric ulcer, and they are much more often multiple. Indeed, observations made during resection of the duodenum indicate that it is the rule for two ulcers to be present. Just as in the case of the stomach, although small they are attended by very extensive fibrosis, which frequently surrounds the common bile duct and eats into the pancreas.

I have gained the impression, though it does not amount to a certainty, that ulcers of the duodenum can be more readily induced to heal than ulcers of the stomach. Perhaps this is due to the fact that they are of smaller size. I am not sure that it is wise to bank upon this impression, for we know how many of them resist treatment, and if they are allowed to enlarge and burrow into the pancreas removal by operation always becomes a formidable procedure and sometimes proves to be impossible, whilst the walls of the ulcer may have become so rigid that indirect surgical measures, such as gastro-jejunostomy, may be ineffective.

The radiographer's diagnosis of duodenal ulcer is less certain than that of gastric ulcer and the classical symptoms are not always present, whilst hyperchlorhydria without duodenal ulcer may simulate the disease very strongly. It therefore comes about that sometimes we open the abdomen only to find no trace of the expected ulcer. In some of these patients I feel sure that a posterior ulcer is present and overlooked. This is extremely easy to do. On several occasions I have only first become aware of the presence of a second duodenal ulcer behind when a resection operation has been begun and the viscus has been in process of separation. I have also seen *post mortem* an ulcer which could not be detected by the pathologist until the intestine had been actually opened. If an ulcer on the anterior wall of the duodenum is so small as to give no visual or tactile evidence of its presence from the outside, the prospect of cure occurring subsequently is likely to be fairly good; little harm, therefore, will probably arise from closing the abdomen without proceeding further. On the other hand, the ulcer may persist. One of my patients had been explored by a surgeon for duodenal ulcer eight years previously to admission. None could be found and his abdomen was closed. The symptoms had persisted. Operation revealed the presence of anterior and posterior ulcers, which were removed by excision of the duodenum. This case is a warning against operating too early after symptoms of duodenal ulceration have appeared. At this early stage an ulcer destined to persist and become callous may be quite undetectable from the outside.

As I have said, the radiographic diagnosis of duodenal ulcer is difficult. Visualization of the first part of the duodenum is not certain for two reasons: it may be hidden by the shadow of the stomach; the exposure may be made whilst the duodenal cap is contracted after expelling its contents, which it does every two or three minutes. Sometimes it will not fill very readily. There are ways of circumventing these difficulties, but it cannot invariably be done. The niche of the ulcer is less prominent and the notch not so distinctive. Going back over my cases with the radiographs, the striking thing is that there always appears to be some deviation from the normal picture whenever good visualization of the duodenal cap has been obtained. There is a spasmodic indrawing, a flattening of the left border, an asymmetrical pyloric canal, a niche, a persistent fleck remaining when the cap has contracted, an irregularity of outline of the cap which often defies precise classification, sometimes only evidence of obstruction to the outflow of chyme from the pylorus, on other occasions distinct hurry in the passage of food into the duodenum. I have made outline drawings of some of these appearances. (Figs. 3 to 9.) If before operation any reliance is to be placed upon irregularity of the duodenal shadow as a sign of duodenal

ulcer, it must be proved that the deformity is a real one, persisting in several films, and not a false shadow owing to imperfect filling. It is worth a surgeon's while to screen his own patients in collaboration with the radiographer. In this way he will obtain a better grasp of the value of radiographic diagnosis of duodenal ulcer.

The Value of Test Meals in Diagnosis.

It is important to consider of what use test meals are in the management of gastric ulcer. From the point of view of diagnosis very little help is to be obtained, but for the medical treatment they are of use. It enables the physician to carry out a rational régime varying in accordance with the quality of the gastric secretion. With this aspect I am not concerned here. Test meals are valuable, but rather as an aid to treatment than diagnosis.

Choice of Operative Procedure when Surgical Treatment for Gastric Ulcer has been decided upon.

When patients requiring operative treatment have been selected, the path to be followed is even then not quite easy to choose. There are a bewildering number of methods and advocates of them all. Moreover, the inevitable statistics are quoted, and because they are not arrived at by the same methods of compilation they add to the confusion. When one observer, for instance, claims over 90 per cent. good results from gastro-jejunostomy for duodenal ulcer, whilst another, using an apparently identical technique, can scarcely attain to 60 per cent. success, there is obviously some radical difference in their manner of evaluation. Sleeve resection of the stomach is extolled by one surgeon and condemned by another. For the serious student of operative measures for gastric and duodenal ulcer there is only one course to follow: he must select those methods which appear to be based on sound knowledge, and, after trial, endeavour to form his own conclusions as to their relative worth and applicability. Gradually, with experience, and if we remain unbiased, conviction comes that this or that recourse is indicated in any given circumstances. To do this requires unremitting alertness to escape making false deductions. It is more useful to remember the failures or partial failures than the successes. From time to time it is well to read over again the cases which have come under observation. Treatment is best considered under headings.

A. *Ulcer of the Lesser Curvature.*

1. *Gastro-jejunostomy* (Fig. 10) alone is being discarded by nearly all operators. It cannot be denied that some patients have been cured by this operation, but it seems proved that the proportion cured is much too small for the operation to be retained as a method of choice. I have records of patients who have got no benefit from it, and when the abdomen was opened after several years the ulcer still persisted.

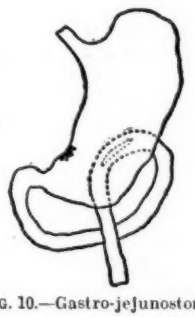

FIG. 10.—Gastro-jejunostomy.

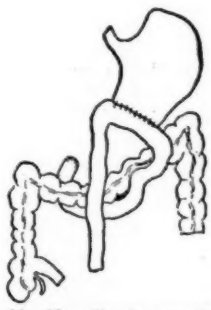

FIG. 11.—Moynihan's operation for ulcer of lesser curvature.

2. *Resection of the pyloric segment of the stomach, including the sphincter, with implantation of the cut end of stomach into the jejunum.* This operation is often referred to as the Polya operation, but the method of Moynihan is by far the best. (Fig. 11.) It is being performed very extensively just now, and the reports of the results are, on the whole, very satisfactory. It is in most cases a fairly simple operation to do, though in certain circumstances there may be great difficulties to overcome. On several occasions, when examining the portion of alimentary canal removed, I have received rather a shock in realizing what a physiologically destructive operation had been performed for the size of the pathological lesion. Moreover, to short-circuit all the chyme directly into the jejunum without any of it passing through the duodenum would seem to be a procedure very disturbing to digestion. I have therefore given up this operation except in exceptional circumstances.

3. *Wedge resection of the lesser curvature* (Fig. 12). This operation is usually combined with gastro-jejunostomy, and very good results are claimed by certain surgeons. It is not very widely practised. There are strong objections on experimental grounds, for it has been found in animals to be very upsetting to the normal motility of the stomach.

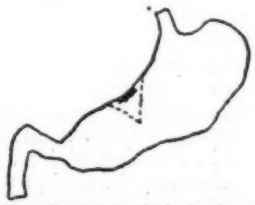

FIG. 12.—V-resection for lesser curvature ulcer.

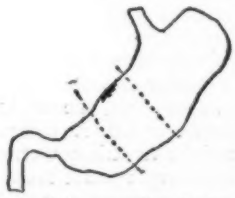

FIG. 13.—Sleeve resection for lesser curvature ulcer.

4. *Sleeve resection of the stomach* (Fig. 13). A ring-shaped segment of the stomach is removed which includes the ulcer. End-to-end anastomosis of the stomach is then performed. When the ulcer is some distance from the pylorus this operation has given me very good results. Some surgeons have condemned the procedure. Extended experience may lead me to change my opinion on this matter, but I have not up to the present had a failure of which I know. The operation is sound on physiological grounds, and motility is not interfered with as after wedge-shaped resection. I believe it is the method of choice for such ulcers.

5. *Resection of the ulcer-bearing area of the stomach, including the pyloric sphincter, with axial anastomosis of the stomach to the duodenum.* This procedure goes under the name of the Billroth I method, as it was practised by that surgeon, though it was abandoned by him owing to its high mortality from peritonitis due to leakage. (Figs. 14 and 15.) It is particularly adapted to cases of ulcer on the lesser curvature near the pyloric end. The duodenum is cut across close to the pyloric sphincter and the stomach proximal to the ulcer. An axial junction is made, the open end of the stomach being partially sutured to reduce its size to that of the duodenum. The Billroth I operation was given up because of leakage at the dangerous angle, and only recently has it been tried again. I have performed it more than twenty times and had no trouble following. I believe such immunity depends solely upon care in suturing, and perhaps care in ensuring that the blood supply of the cut edges to be anastomosed is free. It is an operation which appeals strongly on physiological grounds, for, when completed, the appearance of the stomach passing into the duodenum approaches very nearly the normal. Subsequent *x*-ray examination in my patients has shown good motor function to be present. I believe it to be the method of choice in gastric ulcers on the lesser curvature near the pylorus.

FIG. 14.

FIG. 15.

FIGS. 14 and 15.—Resection of ulcer near pylorus by the Billroth I method.

B. *Pyloric Ulcers.*

There is a choice between two methods—the indirect one of gastro-jejunostomy, and the direct method of excision by the Billroth I procedure. It is here especially that good results have followed gastro-jejunostomy in the treatment of gastric ulcer, and there is much to be said for the performance of such a simple procedure, especially as, when the ulcer is surrounded by much fibrosis, pylorectomy may become technically very difficult. When the risk is not too great, however, better results are to be expected from the Billroth I method, as being much less disturbing to normal physiology and eliminating the possibility of gastro-jejunal ulceration. Bland-Sutton in a Hunterian Lecture recommended this course, and it is a policy which I have adopted for the last two years.

C. *The Treatment of Duodenal Ulcers.*

This problem has not been so satisfactorily solved. There is a difference of opinion as to the value of indirect measures, and the technique necessary to employ direct methods is rather difficult to carry out. The authorities of weight in this country, and some in America, claim very satisfactory results from gastro-jejunostomy in a high percentage of patients, and in this they differ strongly from the majority of Continental surgeons. It is always so very difficult to make accurate deductions from medical statistics, where many significant factors are too variable and uncontrollable for scientific exactitude. The divergence of opinion is undoubtedly related to these irremediable facts. I do not think it possible to dogmatize on the operative treatment of duodenal ulcer in the present state of knowledge. It must be admitted, without reserve, that simple gastro-jejunostomy has cured many patients, yet, the pathology of such ulcers being so similar to that of gastric ulcers, which are acknowledged to be exceedingly resistant to indirect measures, the assertion that the proportion of failures is of moderate size cannot be thrust on one side without further consideration. Future experience must settle this question, and for this it is necessary to give direct measures a fair trial. This is being done in the Surgical Unit of St. Mary's Hospital, where we are making it a routine to resect the duodenum in every case where it seems practicable without undue risk. During 1923 and 1924 down to the date of writing this, 28 duodenal ulcers have been operated upon. This is not a large number, but regard has to be had for the teaching of general surgery, and it is undesirable that the number of cases of any particular disease at one time in the wards should be too great. Of these 28 cases, 10 had simple gastro-jejunostomy performed, sometimes with infolding of the ulcer, once with perforation of the ulcer base with a cautery; 18 cases have had duodenectomy carried out. The immediate results of the latter procedure have been uniformly successful in all but one patient, who died on the eleventh day, when the *post-mortem* examination revealed astonishing healing of the operation site but cardiac muscle degeneration. It is much too small a series as yet from which to make deductions, and time alone will demonstrate whether the results are lasting. The operation is one of the most tedious in surgery, and requires great care to avoid damage to the pancreas and its duct or the common bile duct. After resection of the affected part of the duodenum the stomach in nearly all cases is joined axially to the duodenum so that physiological relations are more nearly restored. A striking fact has emerged from these 18 cases: it is that in a very large proportion there are two ulcers, and the second has several times been discovered only when the stomach has been cut across and access has been obtained to the posterior aspect of the duodenum.

CONCLUSIONS.

1. The primary treatment of gastric and duodenal ulceration is always medical.
2. Surgery is indicated when medical treatment has failed, or in recent cases when a large ulcer crater is demonstrable by *x* rays.
3. It is probably true to say that medical measures can be continued with advantage longer in the case of duodenal than gastric ulceration.
4. For ulcer of the lesser curvature away from the pylorus, sleeve resection is the operation of choice.
5. For ulcers of the lesser curvature close to the pylorus or ulcers at the pylorus, excision of the affected portion of the stomach, including the sphincter, followed by axial union, is best.
6. For cicatrized pylorus following a healed ulcer pylorectomy is preferable, but gastro-jejunostomy gives very good results.
7. For ulcer of the duodenum it is not decided yet whether resection of the duodenum with its attending increased risks gives results so much better than gastro-jejunostomy that it should replace the short-circuit operation.

REFERENCE.
[1] L. R. Dragstedt and A. M. Vaughan: *Arch. Surg.*, 1924, 8, p. 791.

THE TREATMENT OF INFANTILE PARALYSIS:

WITH

A PLEA FOR THE REORGANIZATION OF OUR HOSPITAL SYSTEM.*

BY

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THE subject of poliomyelitis is of much scientific and practical importance, for it is one which should bring pathologist, neurologist, and surgeon into close touch with the general practitioner. Further, it is a good example of one of many administrative problems the consideration of which may serve to shock the spirit of complacent satisfaction with our present hospital system.

PATHOLOGY.

Until recently, poliomyelitis had only occurred in the form of scattered sporadic cases, and any information as to the essential nature of the disease was derived from autopsies on late cases. Such information simply pointed to the destruction of motor cells in the anterior horns of the spinal cord, and it was assumed, therefore, that there was an essential destructive process affecting these structures alone. But the occurrence of the disease in an epidemic form both in Scandinavia and in America has given the opportunity for more accurate investigation, not only of human cases, fatal in the early stages of the disease, but also by means of animal experiment. Certain species of monkeys can be inoculated with the disease, and in these animals it often runs a fatal course. It has been abundantly established that the disease is a definite myelitis of patchy distribution. Vascular engorgement followed by round-celled infiltration of the cord is the primary lesion, and it is probable that the destruction of the nerve cells is only a secondary consequence of the inflammation.

That the disease is not confined to the anterior horns is shown clinically by the fact that in the early stages of the disease there is marked hypersensitiveness of the skin, pointing to affection of the nerve roots and their ganglia. The conception of the disease as one of diffuse inflammation has much more than a theoretical interest, because it affords a rational basis for the treatment by absolute rest in its early period.

CLINICAL STAGES OF THE DISEASE.

It is easy to distinguish three well marked stages in the disease. The first or active stage corresponds to the period of inflammatory infection of the cord. It is marked by general malaise, a febrile temperature, and paralysis with hyperaesthesia of wide distribution. This lasts for a period varying from a few days to a few weeks. The second or quiescent stage is one of convalescence from the constitutional illness. The temperature is normal and the tenderness and hyperaesthesia have passed away. The paralysis, which was extensive in the stage of onset, gradually disappears in the majority of muscles originally affected, but this recovery of motor function will depend

* An address given to the Dorset Medical Society, January 16th, 1925.

largely upon the care with which the case is treated, especially in regard to rest and avoidance of meddlesome attempts to force exercises too early. In a severe case the second stage of quiescence and recovery lasts for one or two years or even longer. The third or final stationary stage is the condition in which the patient is left when all possible recovery of motor power has taken place. Certain muscles or muscle groups are permanently affected with paralysis and wasting of a lower neurone type. If the disease has affected a child in early life, and if a limb is extensively involved, then the growth of the bones in the affected member will be inhibited to a marked extent.

TREATMENT IN THE EARLY STAGES.

In the early stages of the disease rest will be instinctively demanded by the patient, whose flaccid limbs and tender skin forbid anything else. Two mistakes may easily be made: first, that in this country, where so far the cases have only been sporadic, the nature of the illness may be overlooked; and secondly, if and when a correct dagnosis has been made, the rest is neither efficient nor secured for a long enough time. When all the limbs and the trunk are affected nothing short of fixation of the whole body on a suitable frame or a plaster bed is satisfactory. The arms must be abducted at the shoulders, the forearms pronated, and the elbows flexed. The legs must be abducted with a very little flexion of the hips and knees, and a full dorsi-flexion of the feet. The completeness of this early fixation not only affords the greatest comfort to the patient, but it serves to limit the ultimate extent of the paralysis.

It is in the second or quiescent stage of the disease, when pain and fever have passed and the patient feels capable of moving many muscles, that it is most necessary to insist on the continuation of the fixation. The object now will be to prevent contractures of the joints and to nurse back to useful function the partly paralysed muscles. The fixation should not be so absolute as at first. Each limb will in turn be released from the splint and the joints gently moved. The patient is turned over at least once a week and the back washed.

FIG. 1.—Showing method of walking with the arms.

Dr. Lovett,[1] whose unique experience in the Vermont epidemic gave him unrivalled authority on this subject, collected a large number of observations on the value of various remedial agencies. I am indebted to his writings for the greater part of what I say in this connexion.

It is very doubtful whether massage or electrical treatment has any value, and this applies more particularly to the earlier phases of the disease. The one potent active remedial reagent is muscle re-education. This, reduced to its simplest term, consists in allowing the patient to move his own muscles, aided in such a way that at first each movement shall have to lift the minimum load. Thus the quadriceps may be able to straighten the flexed knee when the patient lies on his side, but it would be incapable of doing this when the leg hangs over the edge of the bed. If the paralysed muscle is asked to do too much or to do it too often, the exercise will do harm and not good, and a recovering muscle may become completely and permanently paralysed. Although a fair idea of strength and function may be gained by carefully aided movements, yet a much more accurate measurement ought to be made by means of a spring balance. It is only in this way, by recording the actual strength of each muscle, that any just appreciation can be gained as to the rate of progress and the effect of remedial measures.

Some may be disposed to think that the picture I have drawn of the treatment of a bad case of poliomyelitis in its early period is fantastic and impossible, implying as it does elaborate splinting and daily exercises of many muscles done with meticulous accuracy, and I am fain to admit that I have hitherto been speaking of the work of others and not of my own. But I have seen the treatment carried out and can testify to its practical efficacy.

TREATMENT OF THE FINAL STAGE OF THE DISEASE.

If all this has been done in the early stage of the disease, then, when the extent and distribution of the paralysis have become fixed and definite, we ought to have no contractures or deformities requiring correction, and the treatment will resolve itself into the provision of appliances, the fixation of flail joints, and the transplantation of tendons. But unfortunately efficient treatment in the early stages of the disease is quite exceptional in this country, partly because the nature of the disease has not been recognized early, partly because practitioners and physicians are not alive to the urgency of preventive surgery, and chiefly because we are so ill provided with suitable institutions where the necessary treatment can be carried out for prolonged periods. In actual practice, therefore, the cases are usually brought to the surgeon in the final stage of the disease with the paralysis complicated by contractions and deformities. The surgery of infantile paralysis consists then in correcting deformities which ought not to have arisen before attempting any reconstruction methods.

I will give an account of two recent cases in illustration of this.

A strong and intelligent boy was brought to me in October, 1922. He was wheeled in, and when lifted from the chair he collapsed on the ground, his legs being doubled up under him. He was able to crawl along the ground and to lift himself up on to a chair by the intelligent use of his arms, which were powerfully developed. Both legs were completely paralysed except for the hamstrings of the right leg. The hips and knees were acutely flexed and fixed by contractions; the feet were flail. He had become paralysed in infancy, and when 18 months old had been taken to one of the city hospitals, where he had been treated by electricity and had had extension applied to his legs. He had been sent home without any provision for after-care, and had remained without treatment for fourteen years under the impression that nothing further could be done. He was admitted to the General Hospital, and within twelve months had undergone arthrodesis of one knee and ankle, tendon transplantation for one knee, and tenotomies for both hips. He is now able to walk with crutches and callipers, and I hope eventually he will be able to discard the former.

The other case was even more striking, because the patient had reached the age of 23 before any serious attempt at treatment was made.

A woman, aged 23, when 2 years old had whooping-cough, followed by a further illness, and she was never able to walk afterwards. Between the ages of 4 and 6 she attended a hospital as an out-patient and had electrical treatment; she was dismissed as incurable. When she came to me in April, 1924, she was paralysed in both legs, which she kept doubled up under her. She had acquired a remarkable mode of progression: she grasped the dorsum of each foot with one hand and then, by lifting each in succession, was able to crawl along with some celerity (Fig. 1). After four operations both knees and hips were straightened out, one knee being fixed by arthrodesis. She is now able to walk with crutches.

In both these cases many years had been wasted—fourteen in one instance and seventeen in the other—and it is almost certain that if treatment had been continued from the time of the occurrence of the paralysis, not only would the degree of paralysis have been much less, but all the operations would have been avoided. Perhaps if these two patients were seen for the first time to-day it would be remarked that after all they are still cripples on crutches, but even this is an immense advance over their condition before treatment, when they were mere helpless crawling creatures unable to move outside their own doors and having to be carried upstairs.

THE DISTRIBUTION OF PARALYSIS.

The ultimate distribution of paralysis, as observed by Lovett, has many points of great interest. Paralysis is much more severe and more frequent in the lower limbs than in the upper. The upper limbs recover more frequently than the lower. In the upper limb the severity of the

paralysis is more marked in the proximal than in the distal muscles. The deltoid, biceps, and triceps suffer in this order, whilst paralysis of the forearm muscles is rare. In the lower limb the distal muscles suffer more severely than the proximal. The muscle groups of the leg which are most frequently involved are the glutei, the quadriceps, and the gastrocnemius—that is to say, the muscles associated with the maintenance of the erect position. The tibials and peronei are often affected alone or with the gastrocnemius.

Many of these points in the distribution of paralysis may be associated with the strain put upon the muscles either by gravity or by too early and ill advised attempts at active exercise. Thus the arm is naturally kept at rest or is subjected to no strain, whilst the leg is strained by attempts to walk. The upper arm muscles have to support the weight of the limb and so suffer more than those of the forearm. The lower leg muscles are subject to greater strain in proportion to their size than the upper when attempts are made to walk; and lastly, every effort at standing even with crutches will strain the glutei, quadriceps, and calf muscles, and these are the ones which suffer most. This all emphasizes the fact that the final permanent paralysis is largely determined by failure to rest the damaged structures in the early stages of the disease.

Tendon Transplantation.

Tendon transplantation is, of course, the most rational and the least mutilating of any of the operations for paralysis. But unfortunately the scope of this method is very limited, as there must be a strong and healthy muscle to take the place of one which is paralysed. It is therefore only of use in cases of limited disease. The results of tendon transplantation in the foot and leg are not to be compared with those which follow the operation in the forearm done for musculospiral paralysis. This is due to the greater strength required of the new muscle in the lower limb and to the long and careful preparatory and after treatment. In the foot, there are two movements of the ankle lost by partial paralysis which may be restored by tendon transplantation; these are the movements of flexion and of version. The former is the more difficult problem. Thus, if the gastrocnemius is paralysed, it may be reinforced by taking the tibialis anticus and the peroneus longus and fixing these into the medial and lateral sides of the tendo Achillis, but they can seldom be strong enough to replace the calf muscle. If the dorsiflexors are paralysed the gastrocnemius cannot be sacrificed, nor can it be split, and it is better to use the tendons of the anterior tibial and the long peroneus as a sling by cutting each tendon two inches above the ankle and passing it through a hole bored in the tibia, the foot being strongly dorsiflexed.

As regards version of the foot, the tibialis anticus and the peroneus longus may be interchanged in cases of paralytic varus or valgus. But whilst all these artificial exchanges of muscle sound so simple and attractive, success can only be achieved by great care and patience. In the first place, it is absolutely necessary to correct all deformity before transplanting the tendon. Thus, in a case of varus with paralysis of the peronei, the inversion must be corrected by wrenching and plaster until the deformity is overcorrected and the foot lies in a valgoid position. Then, and not till then, can the anterior tibial muscle be brought across and fixed to the peronei or to the cuboid bone. It is useless to employ a transplanted muscle under tension to correct a deformity.

After the transplantation the foot is again put up in an overcorrected position, and after healing has occurred—that is, in about a month—muscle training is begun, but no weight can be put on the foot for four or six months, and a year's after-treatment should be provided for in every case. The operation is only one incident in the treatment, of which preliminary correction of deformity and subsequent muscle re-education are also essential parts.

The other muscle transplantation for paralysis of the lower limb concerns the restoration of the quadriceps. If all the hamstring muscles are healthy, then the biceps may be taken from the outer side of the leg and the gracilis and semitendinosus from the inner side; these may be sewn to the quadriceps just above the patella, or, better still, passed through a tunnel from side to side in that bone. If the knee flexors are paralysed or weak, then recourse may be had to the tensor fasciae femoris, using the fascia lata as its tendon of insertion into the patella.

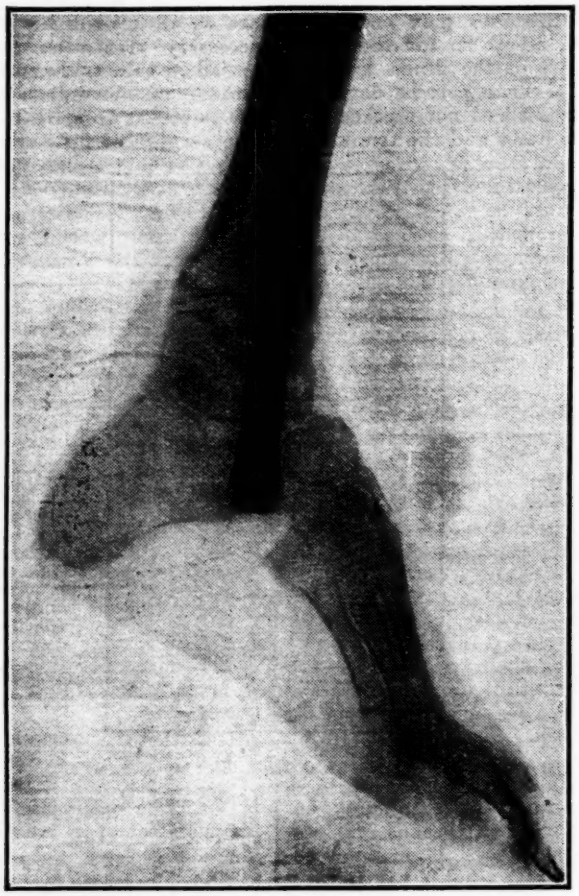

FIG. 2.—A method of fixing a flail-ankle. The astragalus has been taken out, all the cartilage taken from it and its bed, then replaced and the foot fixed with a long bone nail, driven up from below.

The Correction of Deformities.

In neglected cases, the common condition is for the hip and knee to be strongly flexed and for the ankle to be flail. But there may be any type of contracture of the ankle-joint—equinus, calcaneus, varus, or valgus, according to the type of paralysis.

In dealing with each of these deformities it is necessary to plan out a method of treatment which can be carried out step by step. Thus, if a flail-foot is the main lesion, it is worth while to do some fixation operation; but if it is part of a general paralysis of the leg which will require the wearing of apparatus, then the foot can usually be fixed by the latter. Generally speaking, it is wise to correct deformities little by little, and by wrenching or division of tendons and ligaments, rather than by big operations, and especially operations upon the bones and joints. The limbs are ill nourished and repair is both slow and feeble, and extreme correction of deformity done by great force is very liable to be followed by gangrene.

The Foot.

The very many operations which have been devised for paralytic talipes is an indication of the difficulty of the problem. Apart from tendon transplantation, the main object of the operation must be to produce stability and a plantigrade position of the foot in walking. Such operations consist in removal of the astragalus, so as to lessen both height and the length of the foot; arthrodesis of the ankle-joint and the subastragaloid joint; or excision of the scaphoid and cuboid, in order to shorten and fix the foot. I have found it to be very effective to perform astragalectomy through an anterior incision, to remove all the cartilage from the astragalus, tibia, fibula, os calcis, and scaphoid, and then to replace the astragalus and to nail the bones together by a long bone nail passed through the sole of the foot (Fig. 2).

It frequently happens that the quadriceps and gastrocnemius are paralysed and the patient cannot stand. He will often attempt to do so by holding the knee with his hand to prevent it flexing. In such a case, if the foot cannot be prevented from dorsiflexion, then the knee will become automatically locked—that is to say, if the foot is placed on the ground the knee cannot be bent forward without dorsiflexing the foot; hence the suggestion has been made by Putti of placing a bony block in front of the ankle so that dorsiflexion is prevented. This is done by taking a piece from the shaft of the tibia and nailing it into the upper surface of the astragalus so as to stop the ankle-joint from dorsiflexion.

The Knee.

The contraction of the knee is best corrected by weight extension or by successive plasters rather than by any open operation, and this applies especially to growing children. If, however, the patient has finished growing, an arthrodesis may be done. The knee-joint is opened by cutting the quadriceps above the patella, turning the latter down, and then removing all the cartilage from those surfaces of the femur and tibia which are in contact in a position of straight knee. The cartilage is also removed from the patella and front of the femur after placing the joint in the fully extended position. The patella with its ligament thus acts as a brace, maintaining extension.

The Hip.

If the hip is much contracted it is difficult to get it down by traction or manipulation, because of the mobility of the pelvis and lumbar spine. It is therefore better to make an angled incision over the front of the iliac crest and upper part of the sartorius (the Smith-Peterson incision) and to strip all the muscles from the anterior superior spine and outer surface of the ilium. It is very seldom necessary to cut either the psoas tendon or the capsule of the joint. This will allow the hip to be put up in full extension, where it is fixed by a plaster spica.

The Inequalities of the Legs.

If one leg is sound and one extensively paralysed, the latter is usually two or three inches shorter than its fellow, and this will demand special treatment. That which is usually adopted consists in the provision of a high boot for the paralysed and shortened leg. This may suffice for the growing period, but when adolescence is reached something better is available. Various ingenious devices have been suggested for lengthening the short leg. But these are not satisfactory: first, because not more than one or one and a half inches can be gained; and, secondly, because the operation must be done on a weak atrophic bone, the firm union of which will be doubtful. The femur is divided by a Z-shaped osteotomy and then traction is put on the limb.

I think it is very much better to shorten the sound leg, and this may be done by an osteotomy of the femur at the junction of the shaft with the condyles. The shaft is then given a pointed shape, whilst the condylar portion is hollowed out and the former is then driven into the latter, so that an impaction of one inch may be secured easily. Greater shortening may be obtained by cutting off a portion of the shaft before performing the impaction.

The Restoration of Walking.

To enable the patient to stand and walk with or without crutches and apparatus is the ultimate aim of the whole treatment. The foot can always be stabilized and made plantigrade, the knee can always be fixed or controlled by tendon transplantation, and the hip brought down to full extension, whilst the two legs are made the same length by building up the short or cutting down the long leg. Then the critical question will arise as to the function of the glutei muscles. If these are sound, then the patient should be able to walk without crutch support. But if they are paralysed it is almost impossible to replace their action by any spring or stay, and the patient must be dependent upon crutches. But even walking thus he is usually a cheerful and contented person, instead of being a more or less helpless derelict.

The Hospital Problem.

This brief summary of the nature, course, and treatment of infantile paralysis will serve to prove the urgent necessity for the provision of special institutional care for these cases. A similar claim might also be made for other groups of surgical cases, such as tuberculous disease of bones and joints, and many cases of deformity—for example, club-feet, congenital dislocation of the hip, and septic arthritis. All these diseases have this in common—they are curable, but they require years for their treatment. They need to be treated by a team of men—physician, surgeon, mechanician, and physiotherapist—as well as by specially trained nurses, who shall do nothing else and shall not be taken away just as soon as they know their work. Further, fresh air and open-air hospitals with the maximum of sunshine are necessary for most, whilst from an economic point of view education must be provided during the prolonged treatment. Such open-air school hospitals have been springing up all over the country, chiefly as the result of individual philanthropy and enterprise. But very much more requires to be done in a national and systematic method, if the problem is to be efficiently dealt with. Every large city and every county has now many agencies which provide hospital treatment for the sick, but these have arisen in a haphazard fashion, and for the most part without co-ordination one with another.

Unfortunately the general public of this country have been brought up to think that our voluntary hospital system is fundamentally good and that it should be preserved at all costs; and yet we, as medical men, know that it has failed. The evidence of its failure is only too evident to all who have eyes to see. The majority of voluntary hospitals, crippled by financial stress and governed by committees with a narrow and parochial outlook, fall very far short of the best Continental, Dominion, and American hospitals.

In the original meaning of the term there are very few voluntary hospitals left, for all are forced to ask for payments from their patients. The original idea of voluntary subscriptions has been overshadowed by a levy upon the patients themselves, by systematic collections from workpeople or householders which almost amount to a tax, and by recourse to various lotteries and other gambling transactions, which can only be sanctioned by the doubtful morality, that the end justifies the means. But the most striking evidence of the failure of the voluntary system is found in the fact that every year a larger proportion of the sick have to be handed over to the Poor Law authorities. It is certainly an understatement of the case to say that more than half those who require hospital treatment cannot be taken by our voluntary hospitals, but have to find asylum in the Poor Law infirmaries. It is quite true that many of the latter institutions are good, modern, well equipped, well built hospitals. But they are understaffed as regards medical men, and especially as regards those of consultant rank. And quite apart from any comparison between voluntary hospital and the Poor Law hospital, the fact remains that we, as a community, are obliged to send half our sick to a State or municipal institution, and therefore it is fair to say that the voluntary system has failed. It is usual to pretend that the hospital difficulty is chiefly one of finance, and yet at the present moment we are told that a sum of no less than thirty millions has accumulated under the National Insurance Act and now awaits distribution. I suppose it is no use casting longing eyes upon this golden hoard, although it is tempting to suggest that it might be made the basis of a national fund for reorganization of our hospital system. I only refer to the matter to show that by a simple insurance system money can be had for all our hospital needs. It is not the want of money, but the want of willing co-operation between those who govern hospitals, that is the root of the difficulty.

At the present moment these cases of chronic illness, of which I have been describing one example, are the subject of many philanthropic societies and medical institutions, and yet as a whole they are treated very badly. In every large city there are "voluntary" hospitals, children's hospitals, a Poor Law infirmary, a city health committee,

and also perhaps an orthopaedic hospital and a crippled children's society; and yet in a great many there is no adequate system for treating cases of chronic illness requiring an open-air school hospital. A patient is operated upon in one hospital and then returns home to relapse; he is then taken to another hospital as an out-patient, where he attends until the expiration of his note; he drifts into the Poor Law infirmary, where he stays for a few years; he is befriended by the cripples' society, which sends him away into the country for a few months; or he comes to the health committee, which sends him away to a distant county, because this seems easier at the moment than the provision of efficient treatment at home.

It would seem so obvious that all those who are responsible for the treatment of the sick ought to co-operate instead of competing with one another. But this is apparently impossible because their independence would be threatened if each ventured to join hands with the others, even for the common good.

The Ministry of Health, one would have thought, would be the ideal agency to invoke to bring about hospital reform. But a Ministry will never take action until popular feeling is aroused, and the only way to arouse popular feeling is for the members of the medical profession, who know the facts, to explain them to the public.

It would seem to me that the essential needs of our long overdue hospital reform are as follows:

1. All hospitals should be controlled by a single committee of management in each county or administrative district. Each hospital would still require its house committee, but in matters of policy the interests of each institution would be subordinated to those of the community at large.

2. The financial basis of our national hospital scheme should be made worthy of this great and rich country, and the present jumble of municipal rate aid, State aid, haphazard philanthropy, and importunate begging or gambling should cease. National insurance should be the basis of hospital finance.

3. The treatment of all cases of chronic illness should be conducted in open-air school hospitals in the country.

At present only one political party, and that the socialists, have ever thought it worth while to formulate a hospital policy; and the socialists' policy is so identified with the idea of whole-time State service as to make it repugnant to the medical profession. But the essential ideals of hospital reform in no way necessitate this State service, and it is our duty to aim for these ideals in every way in our power, both in season and out of season.

REFERENCE.

[1] *Infantile Paralysis in Vermont*, Burlington, Vermont State Department of Health.

SOME FEATURES OF THE RHEUMATIC INFECTION.

BY

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THE following investigation was undertaken in order to gain information regarding (1) the life-history of the rheumatic infection in childhood, and (2) the effect of different methods of treatment of the first rheumatic manifestation. The analysis was made from the records of 141 cases of rheumatic infection which had been admitted to the Royal Hospital for Sick Children, Glasgow, between the years 1916 and 1921 inclusive. In 1923 the cases were traced, those available were examined, and their histories subsequent to dismissal from hospital obtained.

The period between the onset of the first rheumatic manifestation and the final examination varied from one to eleven years; in 20 cases the period was under three years, in 98 between three and seven years, and in 23 cases between seven and eleven years. Since their dismissal from hospital the majority of the children had been leading ordinary home lives and receiving no special care or treatment.

Manifestations of the Rheumatic Infection.

The following lesions have been considered as indicating rheumatic infection: (1) arthritis, (2) chorea, (3) carditis, (4) subcutaneous nodules, (5) tonsillitis, (6) cutaneous lesions—namely, psoriasis, erythema nodosum, erythema multiforme, purpura, and urticaria (these are only included when developing in cases with some other rheumatic manifestation).

First Rheumatic Manifestation.

The relative frequency of the different manifestations during the first definite rheumatic attack is shown in the following table. As it is impossible, except from physical examination, to gain exact information regarding the presence of carditis, it cannot be said how often this was present as a first manifestation, and hence in the table cases of carditis associated with any other rheumatic manifestation have been omitted.

TABLE I.—*Relative Frequency of Various Rheumatic Manifestations during First Attack.*

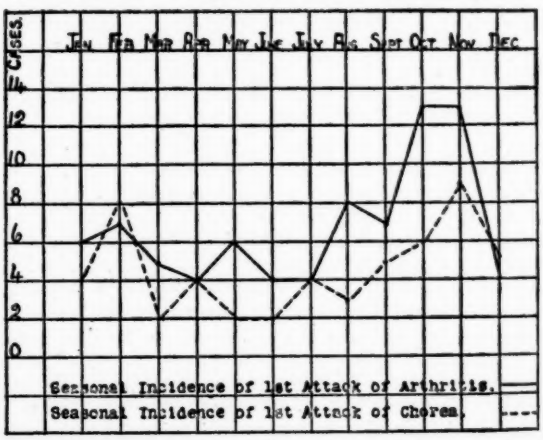
Rheumatic Manifestation.	Cases.	Percentage.
Arthritis	79	56.0
Chorea	35	25.0
Carditis without other lesion	10	7.0
Tonsillitis	7	5.0
Arthritis + chorea	5	3.5
Arthritis + tonsillitis	5	3.5

ARTHRITIS.

Though in the whole series of cases cardiac mischief occurred slightly more frequently as a manifestation of the rheumatic infection than did implication of the joints, arthritis will be considered in the first instance, not only because it occurred much more frequently as the first manifestation, but also because it is usually looked upon as the most characteristic of the various lesions. Arthritis occurred at some stage of the disease in 103 cases—that is, 73 per cent. of the total 141 patients. In 89 cases it was the first manifestation, but followed chorea in 10 cases and tonsillitis in 4 cases. It showed in addition a strong tendency to recur, 41 per cent. of the 103 cases having had four or more attacks, 6 per cent. three attacks, and 20 per cent. two attacks. In only 33 per cent. of the cases was there no recurrence.

Age of Onset and Sex Incidence.—No case of arthritis was recorded during infancy. One occurred during the second year, two during the third, and two during the fourth; 10 cases (10 per cent.) were under 6 years of age, 63 cases (61 per cent.) were from 6 to 10 years, and 30 cases (29 per cent.) were over 10 years of age at the onset of the first attack; 62 of the patients (60 per cent.) were girls and 41 (40 per cent.) boys, giving a ratio of 1.5 : 1.

Seasonal Incidence.—Although developing at all periods of the year, arthritis showed a definitely greater prevalence during the autumn and winter months. October and November were responsible for the onset in 32 per cent. of the total cases, while only



10 per cent. commenced during June and July (see chart). In Nordgren's[1] series of cases for Stockholm the greatest number likewise occurred in October and November. In London, on the other hand, rheumatic arthritis would appear to be most common in September and October,[2] or May and November,[3] while

American figures[2 4] reveal the greatest prevalence during the first four or five months of the year.

Associated Lesions.—Arthritis was seldom the only manifestation of the infection. Only 6 cases gave no history, either previously or subsequently, of any other manifestation. The frequency with which other rheumatic lesions were associated with arthritis was as follows: with carditis 87 cases (84 per cent.); chorea 45 (44 per cent.); tonsillitis 32 (31 per cent.); nodules 10 (10 per cent.); and skin lesions 6 (6 per cent.).

CHOREA.

Authors differ in their opinion regarding the relative frequency of rheumatic and non-rheumatic chorea. For the purpose of the present investigation I selected all the cases of chorea from the hospital records, and in the series of 67 cases 50, or 75 per cent., presented at the time of the first observation, or gave a history of, some other manifestation indicative of the rheumatic infection. These 50 cases had all been classed "rheumatic" chorea, whereas the remaining 17 had been provisionally diagnosed "non-rheumatic" chorea. When, however, the latter group of 17 cases was reinvestigated in 1923, at periods varying between one and a half and six years after their dismissal from hospital, it was found that 9, or 53 per cent., of them had developed some manifestation definitely justifying their inclusion in the rheumatic series. Carditis had developed in 6 cases (35 per cent.), arthritis in 5 cases (29 per cent.), tonsillitis in 3 cases (18 per cent.), and skin lesions in 3 cases (18 per cent.).

Since the freedom from some subsequent rheumatic manifestation in the remaining 8 cases would seem to be due to the method of treatment adopted, rather than to any other factor (as will be revealed later when discussing the question of therapy), and since the vast majority of the children gave a history indicative of rheumatism, one feels, with Thomson,[5] "that it is well to regard every choreic patient as probably rheumatic and to be ready to treat him accordingly."

Chorea as a First and Subsequent Manifestation.—It is remarkable that when chorea did occur it most frequently developed as the first rheumatic manifestation. In 40 of the 67 cases it occurred as a first rheumatic manifestation; in 19 cases it followed arthritis and carditis, in 4 arthritis and tonsillitis, in 3 tonsillitis, and in 1 pericarditis. Noteworthy, too, is the fact that recurrences were not infrequent: 35 per cent. of the children had suffered from four or more attacks, 10 per cent. from three attacks, and 21 per cent. from two attacks. It is interesting to note the increase in the incidence of the various rheumatic manifestations in the total series of cases of chorea between the time of their coming first under observation and that of the final examination in 1923. During this period the percentage of cases presenting a cardiac lesion had risen from 54 to 70; arthritis from 57 to 64; tonsillitis from 25 to 30; and skin lesions from 1.5 to 6. There did not occur, however, any increased incidence of subcutaneous nodules, which still remained at 7 per cent. This is probably accounted for by the fact that by the time nodules appear the patient has usually passed through the whole gamut of rheumatic lesions.

Age of Onset and Sex Incidence.—No example of chorea was recorded under 3 years of age. In three cases it developed during the fourth year, in three during the fifth year, and in six during the sixth year of life; 18 per cent. of the patients were under 6 years of age; 55 per cent. were between 6 and 10 years; and 27 per cent. were over 10 years when they first suffered from chorea. This age incidence accords with that described by previous workers. Fifty-one of the cases were girls and 16 were boys, giving a ratio of 3:1.

Seasonal Incidence.—The seasonal incidence of chorea was remarkably similar to that of arthritis. November and February were the months showing the greatest prevalence, together accounting for 32 per cent. of the cases, while May and June were responsible for only 7 per cent. (See chart.)

Lesions Associated with Chorea.—Chorea was associated with other rheumatic manifestations in 59 cases, the most frequent from personal observation being carditis. Though chorea has been described by other writers as running concurrently with arthritis, such has not been noted in our cases. True, in the histories of some of the patients this had been recorded as having happened previous to their admission to hospital, but the association of chorea and arthritis was never observed while the patients were under our direct observation. We have seen one case, however, in which arthritis developed immediately after the cessation of chorea.

CARDITIS.

All cases of organic heart disease are considered under this heading, whether the pericardium, the myocardium, or the endocardium was specially involved. Of the total 141 cases 107 (76 per cent.) had a cardiac lesion of some nature.

Carditis as a Primary Rheumatic Manifestation.—As many of the patients were not under observation during the first attack of rheumatism, it is impossible to determine accurately how frequently there had been cardiac involvement from the beginning. The fact, however, that 58 per cent. of 83 cases admitted to hospital during the primary attack did present a cardiac lesion would seem to indicate that the heart is often affected early in the course of the disease.

Carditis as a Subsequent Manifestation.—We had, however, frequent opportunities of observing the development of carditis subsequently to some previous rheumatic affection. For example, 46 cases either observed with arthritis or chorea, or giving a history of arthritis and chorea, were dismissed from hospital after their first period of residence without any evidence of cardiac implication, but at the time of the final review in 1923, 12—that is, 26 per cent. of these so-called "potential cardiac cases"—were found to have developed some heart lesion. The details regarding the above-mentioned cases are summarized in Table II.

TABLE II.—*Subsequent History of Three Groups of "Potential Heart Cases."*

Rheumatic Manifestation.	No. of Cases Without Carditis on Dismissal from Hospital (1916-21).	No of those who had Developed Carditis by time of Final Examination in 1923.	
A. Arthritis	15	1 = 7%	
B. Arthritis and chorea	14	6 = 43%	35%
C. Chorea	17	5 = 29%	
		12 = 26%	

Although in the total series of cases (141) studied carditis was more frequently associated with arthritis than it was with chorea, the after-history of these potential cardiac patients shows (see Table II) that carditis had more frequently developed in those who had been in hospital on account of chorea than in those who had been treated for arthritis—for example, 7 per cent. of the latter as against 35 per cent. of the former. This apparently paradoxical finding we are in the meantime inclined to explain on the ground of the varying methods adopted in treating the examples of chorea. Without exception, all examples of arthritis were treated with salicylates, whereas in only a proportion of the cases of chorea was this line of treatment adopted, and, as will be shown later (p. 499), the incidence of subsequent cardiac disease in chorea was least in those who had been submitted to a course of salicylates. St. Lawrence,[6] in a recent study of his clinical material, also elicited the fact that cardiac disease is more frequent after chorea than after arthritis. In no case of arthritis did he find later affection of the heart, whereas in 39 per cent. of his patients suffering from chorea subsequent examination revealed a cardiac flaw. St. Lawrence, however, gives no details regarding the method of treatment adopted in the cases of chorea, and it is therefore not improbable that the high incidence of cardiac disease, which he also found following chorea, may be due, as in our series, to the neglect of specific antirheumatic therapy.

Age of Onset and Sex Incidence.—Because, as previously mentioned, many of the cases when first seen already presented evidence of a cardiac lesion, it was seldom possible to have any but an approximate idea of the age at which carditis developed. The youngest case observed with a definite cardiac lesion was aged 3½ years; 14 per cent. of the children were under 6 years; 61 per cent. were between 6 and 10 years; and 25 per cent. were over 10 years of age when the cardiac mischief was first observed. Sixty-three of the cardiac cases were girls and 44 boys, giving a ratio of 1.4:1, which is practically the same ratio as obtained in the series of cases of arthritis.

Lesions Associated with Carditis.—Of the 107 cases with carditis 100—that is, 93.5 per cent.—presented, or had suffered from, some other rheumatic manifestation. In only 7 cases had there been no other evidence of the rheumatic infection, but not one of these gave a history of any other disease—for example, scarlet fever, diphtheria, or influenza—to which the cardiac lesion might be attributed, and we have therefore considered them as most probably rheumatic in nature. The relative frequency with which the other manifestations were associated with carditis was as

follows: with arthritis, 87 (81 per cent.); with chorea, 41 (44 per cent.); with tonsillitis, 25 (23 per cent.); with nodules, 10 (9 per cent.); and with skin lesions, 5 (5 per cent.).

Frequency of Various Cardiac Lesions present.—The following table (No. III) shows the relative frequency of the various lesions or combination of cardiac lesions and the frequency with which the different structures were affected.

TABLE III.—*Showing the Relative Frequency of Various Lesions or Combinations of Cardiac Lesions Present.*

Cardiac Lesion.	Cases.	Percentage.
Mitral incompetence	43	44
Mitral stenosis and incompetence	35	32
Pericarditis, mitral stenosis, and incompetence ...	5	5
Aortic incompetence and mitral incompetence ...	5	5
Aortic incompetence, mitral stenosis, and incompetence	3	3
Pericarditis, aortic incompetence, mitral stenosis, and incompetence	3	3
Pericarditis, aortic incompetence, and mitral incompetence	2	2
Pericarditis and mitral incompetence	1	1
Mitral, aortic, and tricuspid incompetence	1	1
Mitral, aortic, and pulmonic incompetence ...	1	1
Mitral stenosis	1	1
Pericarditis	1	1
Hypertrophy and dilatation	1	1

Frequency with which Various Structures were Involved.—Mitral valve, 105 cases (98 per cent.); aortic valve, 15 cases (14 per cent.); pericardium, 12 cases (11 per cent.); tricuspid valve, 1 case (1 per cent.); pulmonic valve, 1 case (1 per cent.).

Result of Cardiac Involvement.—The all-important point in carditis is, of course, the degree of disability resulting. It is this which imparts to the rheumatic infection its seriousness and which has aroused the present almost world-wide interest in the subject. Of the 107 cases of carditis 28 had died by the time of the review of the material in 1923, but there were available for investigation and estimation of the resulting disability 79 children. Of these 79 children 9, or 11 per cent., were incapable of following any occupation or attending any other than a special school; 57, or 73 per cent., were leading moderately active lives, but gave a history of precordial pain or dyspnoea after exertion; and 13, or 16 per cent., were entirely free from any symptoms of cardiac disease.

Nature of Lesion.—In Table IV the results are summarized and classified according to the nature of the lesion present. As is to be expected, since of all rheumatic cardiac lesions that of the mitral valve is the most frequent, more had died and a greater number were markedly disabled through mitral disease than either aortic or pericardial mischief, but proportionately, aortic disease and pericarditis were much more serious lesions: 67 per cent. of the cases of pericarditis died, 47 per cent. of those with aortic disease, and only 17 per cent. of those with simple mitral disease. One was astonished that comparatively few of the cardiac patients were greatly disabled, the great majority of those living being only slightly inconvenienced. An equal proportion of both the mitral and aortic cases were devoid of any disability, but all the examples of pericarditis presented some symptom of cardiac distress.

TABLE IV.—*Result of Cardiac Lesion Classified according to Structure Involved.*

Lesion.	Total No. of Cases.	Died.		Markedly Disabled.		Slightly Disabled.		Not Disabled.	
		No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.
Mitral alone ...	84	14	17	8	9	51	61	11	13
Aortic	15	7	47	—	—	6	40	2	13
Pericarditis ...	12	8	67	1	8	3	25	—	—

In the following table (No. V) are summarized the results in the cardiac cases which have been grouped according to the age of onset of the first rheumatic attack, and from this it is seen that on the whole the earlier the age of onset the greater the tendency to a fatal issue or marked disability.

TABLE V.—*Prognosis in Relation to Age at First Rheumatic Attack.*

Age at First Attack.	Deaths.	Marked Disability.	Slight Disability.	No Disability.
	Per cent.	Per cent.	Per cent.	Per cent.
3-5 years ... 18 cases ...	22	11	55	11
5-7 „ ... 32 „ ...	41	9	41	9
7-9 „ ... 21 „ ...	26	10	52	10
9-11 „ ... 25 „ ...	12	4	68	16
11-13 „ ... 11 „ ...	18	9	55	18

Analysis of the fatal cases reveals the fact that death occurred in the great majority of instances comparatively soon after the inception of the infection. Of the 28 patients who died, the fatal issue ensued within three months of the onset of the symptoms in 7=25 per cent.; within one year in 16=57 per cent.; and within two years in 21=75 per cent.

SUBCUTANEOUS NODULES.

In marked contrast to their prevalence in some previously published reviews—for example, those of Still[7] and Poynton and Paine[8]—subcutaneous nodules were noted in only 10 (7 per cent.) of our cases. They developed during the first attack of rheumatism in 4 cases, during the second attack in 4 cases, and during the third attack in 2 cases.

Age of Onset and Sex Incidence.—One case was under 6 years of age, 3 cases were from 6 to 10 years of age, and 6 were over 10 years when the nodules were first observed. Seven of the patients were girls and three boys

Associated Lesions.—In all the patients some other rheumatic manifestation was present. All 10 cases had carditis, and all had, or had had, arthritis, while 5 also gave a history of chorea and 2 of tonsillitis.

Prognosis.—It is generally agreed that this manifestation is of grave significance, indicating the presence of serious and progressive cardiac disease, and pointing to "lowered power on the part of the cells to destroy the infective agent."[10] It proved so in our cases, 60 per cent. of whom died, while the rest presented marked cardiac disability.

TONSILLITIS.

The opinion is general that there exists a definite and frequent relationship between tonsillitis and rheumatism, and recent writers from America[9] have stated that tonsillectomy more than any other measure prevents recurrence of arthritis and chorea. In the present series of cases under review, however, a history of sore throat was only obtained in 39=28 per cent. In only 7 cases did tonsillitis precede any rheumatic manifestation. In 5 cases it occurred simultaneously with some other manifestation, while in 13 it followed arthritis, in 10 arthritis and chorea, and in 4 chorea.

CUTANEOUS LESIONS.

Psoriasis, urticaria, erythema multiforme, erythema nodosum, and purpuric erythema have all been considered of rheumatic significance by many writers. Recently, however, their association with rheumatism has been questioned, and it seems doubtful whether these cutaneous affections occur with greater frequency among "rheumatic" patients than among those with other infections. In this series cutaneous lesions developed in only 8 cases (7 females and 1 male)—that is, 6 per cent. of the total 141 cases. Psoriasis occurred in 2 cases, erythema multiforme in 2 cases, erythema nodosum in 1 case, and urticaria in 3 cases.

EFFECT OF TREATMENT.

Though undoubtedly prophylaxis is the ideal form of treatment, absence of definite knowledge regarding the etiology of rheumatism makes discussion of this aspect of the subject futile. However, when the infection once declares itself there would seem little doubt that heroic and efficient treatment is well worth while. This is well borne out by contrasting the after-results of the cases of arthritis and chorea which were treated during their first attack at home with those treated in hospital. In many cases the home treatment was *nil*, or rest in bed for varying periods with or without the administration of salicylates. So far

as the cases of arthritis admitted to hospital were concerned, the treatment consisted in routine rest in bed for eight to twelve weeks, and the administration of sodium salicylate in doses of 60 to 180 grains a day. No less attention was paid to the slight cases than to the severe, it being, in fact, considered more important to treat efficiently cases of chorea or arthritis without cardiac involvement than those in which damage to the heart had already occurred. In these groups of cases reference is only made to the treatment of the first rheumatic attack. The results are summarized in Table VI.

TABLE VI.—*Results of Home Treatment and Hospital Treatment of Arthritis and Chorea Contrasted.*

Predominant Rheumatic Manifestation.	Cases Treated at Home during First Attack.		Cases Treated in Hospital during First Attack.		
	No. of Cases Treated.	No. who Developed Carditis.	No. of Cases Treated.	No. Admitted without Carditis.	No. of latter who Developed Carditis.
Arthritis ...	32	29 = 91%	33	12	1 = 8%
Chorea	46	34 = 74%	21	13	5 = 38%
Total ...	78	63 = 82%	54	25	6 = 24%

In contrasting these results it must be admitted, of course, that of the cases treated at home it would only be those in whom some serious rheumatic lesion subsequently developed who would come under further observation, and this naturally would raise the percentage of bad results in the home cases. The contrast, however, between the two groups is so marked that the benefit of thorough treatment in hospital cannot be gainsaid. While of the hospital cases of arthritis only 8 per cent. subsequently developed carditis, 91 per cent. of the home cases, on the other hand, suffered later from heart disease. The same difference, but to a less extent, is observed in the case of chorea, 38 per cent. of the hospital cases as against 74 per cent. of the home cases presenting later a cardiac lesion.

The greater tendency to the development of a cardiac lesion after chorea than after arthritis has already been referred to, and has been remarked upon by other writers. A critical analysis of our material strongly suggests that the tendency or otherwise for choreics to develop carditis depends on the type of treatment which has been adopted. Various are the methods currently recommended for the treatment of chorea, and in the cases under review most of the usual methods had been employed. Salicylates were administered in all cases who had recently suffered from arthritis. In the absence of any such history the patients were treated by arsenic, sedatives, or merely rest in bed without drugs. Rest in bed without drugs was reserved for the very mild cases, while sedatives were given in those examples characterized by violent jerkings.

The relative values of the different methods in preventing cardiac disease are shown in Table VII, which details the subsequent cardiac history of all the cases of chorea treated in hospital and dismissed without any cardiac lesion. The cases of chorea who came under observation with carditis or developed carditis during the course of the illness have been purposely omitted from this analysis as being outside the point under discussion. Cases dismissed irregularly are also excluded.

TABLE VII.—*Relative Values of Different Methods of Hospital Treatment of Chorea.*

Treatment.	No. of Cases Dismissed without Carditis.	No. who Subsequently developed Carditis.
Arsenic alone	5	0 = 0%
Arsenic + sodium salicylate	3	1 = 33%
Arsenic + sedatives	1	1 = 100%
Arsenic + sedatives + sodium salicylate ...	1	0 = 0%
Sodium salicylate alone	4	0 = 0%
Sodium salicylate + sedatives	1	0 = 0%
Sedatives	3	2 = 67%
Rest alone	5	3 = 60%
Totals	23	7 = 30%

The results appear more striking when summarized thus and render further comment unnecessary:

Of non-cardiac cases—
9 received salicylates and 11% subsequently developed carditis.
10 ,, arsenic ,, 20% ,, ,, ,,
6 ,, sedatives ,, 50% ,, ,, ,,
5 ,, rest only ,, 60% ,, ,, ,,

It might, of course, be argued that as sedatives were given in the cases with the most violent choreiform movements they had been employed in the most severe examples of the infection, but a review of all the cases of chorea did not disclose any relationship between the severity of the movements and the incidence of cardiac involvement. Another possible fallacy in the above results seemed to be the use of rest alone in the very mild cases. It might be suggested that the milder examples of chorea came under observation at a later stage of the disease, and thus there had been greater opportunities for the development of cardiac complications, but from a careful scrutiny of the histories it did not appear that the mild cases had been admitted to hospital any later in the course of the disease than those severely affected.

One feels justified, therefore, in concluding that it was the difference in the methods of treatment adopted that was responsible for the variation in the above results. Other drugs may be equally or even more effective in temporarily checking the choreiform movements and in overcoming the emotional disturbances; but if we regard every case of Sydenham's chorea as a manifestation of "the rheumatic infection," and thus a potential cardiac case, treatment by any other method than by the administration of salicylates seems wholly unjustifiable.

SUMMARY.

1. The records of 141 cases of rheumatic infection are analysed.

2. The patients were examined one to eleven years after the first attack.

3. No case occurred during infancy; 60 per cent. were from 6 to 10 years of age at the onset of rheumatism.

4. Girls were affected more frequently than boys. The disproportion was most marked in the case of chorea (3 : 1).

5. Arthritis was most prevalent in October and November (32 per cent.), chorea in February and November (32 per cent.).

6. As regards the lesions considered in this paper, 76 per cent. had carditis, 73 per cent. arthritis, 47 per cent. chorea, 28 per cent. tonsillitis, 7 per cent. subcutaneous nodules, 6 per cent. skin lesions.

7. With regard to cardiac involvement—6 per cent. had marked cardiac disability, 41 per cent. slight disability, 9 per cent. carditis without disability, 24 per cent. had no cardiac involvement.

8. Of the total cases 20 per cent. died; 25 per cent. of the fatalities were within three months, 57 per cent. within one year, 75 per cent. within two years from the onset of rheumatism.

9. Pericarditis and subcutaneous nodules were the lesions indicating most severe infection.

10. Early hospital treatment diminished the incidence and severity of carditis.

11. Treatment was more effective in preventing carditis in arthritis than in chorea.

12. Cases of chorea treated by sodium salicylate had a lower incidence of subsequent carditis than cases treated by arsenic, sedatives, or rest without drugs.

In concluding I have pleasure in expressing my thanks to Dr. Leonard Findlay for placing the material for this work at my disposal, and for his helpful criticism and encouragement.

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OVARIAN TUMOURS COMPLICATING PREGNANCY, LABOUR, AND THE PUERPERIUM.

(*Additional Cases.*)

BY

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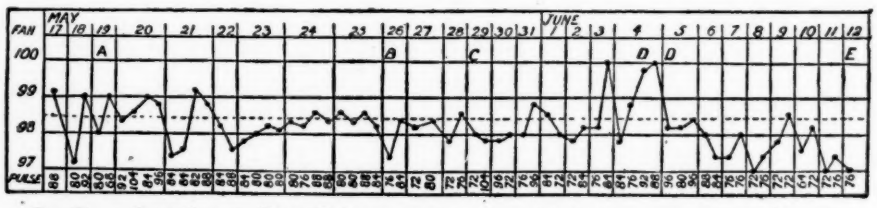
IN the Lettsomian Lectures[1] delivered before the Medical Society of London in 1920 I published the whole of my experience of ovarian tumours complicating pregnancy, labour, and the puerperium. The following cases have occurred since, and I now publish them in order to complete the series up to date.

The first series of cases, 55 in number, was attended by the death of one mother (from intestinal obstruction); the present series, 8 in number, was also attended by one death (from pulmonary embolism on the twenty-fourth day). The mortality for the 63 ovariotomies was 3.1 per cent.

CASE 56.

Mrs. M., aged 27, pregnant for the first time (married on August 27th, 1919), was sent to me by Dr. Faris on February 7th, 1920. She had been last "unwell" three weeks previously, when she only had a pink discharge. She had never gone over her time. The pelvis was large (iliac spines 11 in., iliac crests 11½ in., external conjugate 8½ in.). The breasts resembled those of pregnancy. The uterus could be felt at a height of 3 inches above the pubes. A tumour larger than a hen's egg could be felt behind and to the left of the cervix, which had the characteristic consistence of pregnancy. On March 19th the uterus had increased to the size of the organ at the fourth month, reaching up 4½ inches above the pubes. On May 19th the pelvic tumour had increased in size, being nearly as large as an orange, and was deep in Douglas's pouch; it felt hard like a fibroid and could not be pushed up.



CASE 63.—A=Operation. B=Deep stitches removed. C=Superficial stitches removed. D=Vomited. E=Death from pulmonary embolism, 7 p.m.

On August 11th, 1920, I performed Caesarean section through an incision to the right of the middle line. The placenta was in front. The child (a boy weighing 7¾ lb.) was delivered by the feet, and cried at once. The uterine wound was sewn up with silk sutures. The tumour was found to be a parovarian cyst of the right side. It measured 4 by 3 by 2½ inches and was removed (without the ovary and tube) by enucleation, after carefully tying all the vessels running in the cut peritoneum with fine silk, as also the small sheaf of vessels running towards its base, and then closing the peritoneum with fine silk. The cyst contained clear fluid of lower specific gravity than 1000, no solid growth or papilloma.

The patient made a simple recovery for a fortnight after the operation, when thrombosis of the right femoral vein occurred, which kept her in bed for a month. She made a good final recovery, and with her child was quite well three years later.

CASE 57.

E. D., aged 39, mother of seven children, was admitted to University College Hospital on December 6th, 1920, complaining of increase in the size of the abdomen since her last childbirth three and a half months before, when the tumour was present but caused no difficulty; she felt a dragging pain in the tumour, and suffered from a winter cough with expectoration in which no tubercle bacilli were found. A multilocular ovarian tumour was felt in the abdomen reaching up to a height of 4½ inches above the pubes. It was removed through a median abdominal incision on December 11th, 1920. The tumour weighed 6 lb. and measured 5 by 6 by 4½ inches. Under the microscope it was a pseudo-mucinous cyst with many microscopic papillae, and some of the smaller cysts were packed with papilloma, the epithelium of which was nowhere proliferated. The operation lasted twenty-eight minutes. The bronchitis was aggravated by the operation; the temperature reached 102° on the third day. The patient left the hospital well on January 8th, 1921.

CASE 58.

M. M., aged 34, who had had three children (no miscarriage), was admitted to University College Hospital on February 13th, 1922, complaining of pain in the right side of the abdomen since a week before her last child was born (two years and four months before). She was in the ninth week of pregnancy, having last menstruated on December 20th, 1921. A small cyst could be felt on the right side of the lower abdomen, and bimanually the uterus, nine weeks pregnant, could be felt, pushed over to the left side.

On February 18th, 1922, the tumour was removed through a Pfannenstiel incision. The wound healed by first intention and the recovery was simple, the highest temperature being 99.4° on the second day. The patient was delivered naturally of a living boy, after two hours' labour, on September 26th, 1922. In January, 1925, the abdominal wall was strong and the scar scarcely visible. The tumour measured 2½ by 2½ by 2¼ inches; it was a lutein cyst of the right ovary.

CASE 59.

N. A., aged 18, a primigravida, was admitted to University College Hospital on May 15th, 1922, as she had been found (on her previous admission in April) to have a dermoid tumour in the pelvis which could not be pushed up. The pelvic measurements were: iliac spines 10 in., iliac crests 11¼ in., external conjugate 8¼ in., diagonal conjugate 4½ in.; the outlet was contracted.

Caesarean section was performed on May 20th, 1922, two days before term. The child was delivered in fifty-three seconds; it weighed 7 lb. 6 oz., and cried at once. The ovarian tumour (of the right side) was then removed and the pedicle tied with silk, the tube being left behind. The operation lasted fifty-eight minutes. The patient made a good recovery, the highest temperature being 100° on the seventh day, afterwards normal. The tumour was a dermoid weighing 6½ oz., and measured 4 by 2-3/5 by 2 in. It contained cartilage, fat, muscle, spaces lined with epithelium, sebaceous glands, and hair follicles, and was lined with a thin squamous epithelium.

CASE 60.

R. B., aged 34, mother of seven children (no miscarriage), was admitted to University College Hospital on May 25th, 1922. Her doctor had found a tumour in the abdomen during her last pregnancy, and while she was being prepared for admission to the hospital labour came on and she was delivered of a living child, which presented by the breech, on January 29th, 1921. She had steadily increased in size, and was again about five and a half months pregnant, having last menstruated on November 22nd. There was very extensive pigmentation of the arms and face. The uterus reached up to the umbilicus, and above it was a flaccid cyst extending up to the ensiform cartilage.

Ovariotomy was performed on May 27th, and a multilocular cyst of the right ovary containing blood-stained fluid was removed. It was mainly unilocular with a few daughter cysts, and contained no solid growth except one or two small masses of papilloma showing under the microscope no tendency to malignancy. After the operation the pigmentation became less intense. A good recovery ensued; the highest temperature during her stay in hospital was 99.4°. She left the hospital on June 6th. The pregnancy continued, and the patient was delivered of a living girl on September 12th, 1922, and of a living boy in October, 1924.

CASE 61.

L. T., aged 30, mother of two children, was admitted on June 2nd, 1922, complaining of dragging pain in the left iliac fossa and of a yellow discharge since her last confinement five months before. She had had a flooding nine weeks before admission and had "seen nothing" since. The uterus was felt at a height of 2½ inches above the pubes, of the size, shape, and consistence of the pregnant organ at the ninth week. Behind the uterus could be felt a cystic swelling larger than a hen's egg; it could be moved but not easily pushed out of the pelvis.

Ovariotomy was performed by a median abdominal incision on June 4th, 1922. A good recovery was made; the highest temperature was 100°, on the seventh day. The tumour consisted of a cyst measuring 2½ by 2¼ in., with two small cysts in its wall, and of a more solid part containing a few small cysts and a corpus luteum of pregnancy. The patient went to term and was delivered of a living boy at the end of January, 1923.

CASE 62.

M. K., aged 33, who had had two children and one miscarriage, was admitted on July 29th, 1922, complaining of flooding for nine days. The patient was two months pregnant. An ovarian tumour was found reaching up to within 1½ inches of the umbilicus. Next day the temperature reached 102.2°, and the patient passed a two-months ovum; the temperature then fell to normal. On August 1st the uterus was felt at a height of

OVARIOTOMY FOR TUMOURS COMPLICATING PREGNANCY, LABOUR, AND THE PUERPERIUM (EIGHT ADDITIONAL CASES).

No.	Initial.	Age.	Children.	Abortion.	Time of Discovery of Tumour.	Seat of Tumour.	Nature of Tumour.	Result of Labour to— Mother.	Result of Labour to— Child.	Growth of Tumour during Pregnancy.	Date of Ovariotomy.	Adhesions.	Result.
56	M.	27	0	0	During this pregnancy	R. parovarium	Unilocular cyst—4 by 3 by 2½ in.	Lived	Lived	Some	Aug. 10, 19 0 (immediately after Caesarean section near term)	No (a few flimsy shreds on fundus uteri)	Recovered.
57	E.D.	39	7	0	Tumour present during last pregnancy (confined 3½ months before)	L. ovary	Multilocular pseudo-mucinous cyst with papilloma in some of the cysts; weight 6 lb.	Lived	Lived	Not known	Dec. 11, 1920	No	Recovered.
58	M.M.	34	3	0	At ninth week of pregnancy	R. ovary	Lutein cyst—2½ by 2½ in.	Lived (labour normal, Sept. 6, 1922)	Lived (boy)	Not observed	Feb. 18, 1922 (at ninth week of pregnancy)	No	Recovered.
59	N.A.	18	0	0	At 7th month of pregnancy	R. ovary	Dermoid, 6½ oz. (measured 4 by 2½ by 2 in.)	Lived	Lived (boy, 7 lb. 6 oz.)	Not known	May 20, 19 2 (immediately after Caesarean section)	A tag of omentum adherent to wall near top of wound	Recovered.
60	R.B.	34	7	0	During last pregnancy (child born Jan. 29, 1921; breech resentation)	R. ovary	Multilocular cyst size of adult head, with few patches of low papilloma	Lived (labour normal, Sept. 12, 192.)	Lived (girl)	Slow increase	May 27, 1922 (in sixth month of pregnancy)	No	Recovered.
61	L.T.	30	2	—	During this pregnancy	R. ovary	Unilocular cyst—2½ by 2½ in. in pelvis	Lived (labour normal, Jan., 1923)	Lived (boy)	Not known	June 4, 1922 (a. 13th week of pregnancy)	No	Recovered.
62	M.K.	33	2	1	During pregnancy (aborted at second month, six days before ovariotomy)	R. ovary	Multilocular cyst size of infant's head with septa broken down; some papillomata, one small cyst stuffed with papilloma branched epithelium, not proliferated	Lived	—	Not known	Aug. 6, 1922	A few to right broad ligament	Recovered.
63	L.A.	31	0	0	During this pregnancy	R. parovarium	Unilocular cyst—3½ by 3½ by 2½ in.	Died	Died (Caesarean section after mother's death)	No	May 19, 1923 (at 31st week of pregnancy)	No	Died.*

* Pulmonary embolism June 12th, twenty-four days after operation.

3 inches above the pubes; it was pushed forwards by a tumour, as big as a child's head, which was thought to be probably a dermoid.

Ovariotomy was performed on August 5th. During the separation of an adhesion the tumour burst. It was removed and the pedicle tied with silk. The operation lasted forty-three minutes. The tumour was a multilocular pseudo-mucinous cyst containing unbranched papilloma; one more solid portion contained a loculus filled with branched papilloma. The patient made a good recovery (highest temperature 99.8°), and left the hospital at her own request on August 21st.

CASE 63.

L. A., aged 31, married two years, applied when thirty-one weeks pregnant for a confinement "letter" at University College Hospital. She had suffered a good deal from vomiting in the morning and from headaches during the last few weeks. She had a feeling of weight on walking and was very breathless on exertion. The heart apex beat was in the fifth space 4 inches from the middle line, and, on auscultation, a systolic and a presystolic murmur were heard. The urine, specific gravity 1020, was free from albumin, sugar, or blood. The pelvic measurements were: iliac spines 9¾ in., iliac crests 10¼ in., external conjugate 7¼ in. On May 18th the uterus reached up for 8 inches above the pubes. The child presented by the head. On vaginal examination a firm rounded tumour as big as a flattened orange could be felt in the retrouterine pouch. It was diagnosed as a dermoid.

Ovariotomy was performed on May 19th, 1923. The uterus was withdrawn from the abdomen through a ten-inch incision and the tumour brought up. It was a parovarian cyst, on the right side, measuring 3½ by 3½ by 2½ inches. The pedicle was tied with silk (without enucleating the cyst) and the raw edges sewn over with fine silk. The ovary was not removed. The operation lasted fifty minutes, under ether anaesthesia. The wound healed by first intention. The cyst was unilocular, contained clear watery fluid, no albumin, and no papilloma; it was lined by cubical epithelium. The patient made a normal recovery, the temperature never rising above 99.2° till the fifteenth and sixteenth days, when it rose to 100°, but fell to normal afterwards. On those two days the patient complained of sharp pain in the chest, but no physical signs could be detected, and the pulse was but slightly affected and the respiration not at all. On the twenty-first day the patient got up and lay on a couch, and on the twenty-second and twenty-third days she sat in a chair. On the twenty-fourth day she walked about the ward at intervals for half an hour; but on returning to bed she suddenly collapsed and rapidly lost consciousness and the breathing became stertorous. The pulse at first was full and bounding, then rapid and weak. There was considerable cyanosis and dyspnoea, and the right leg was found to be slightly swollen. The patient died in ten minutes from the onset of the attack. Caesarean section was performed by the obstetric registrar within three minutes after the death of the mother, but though the foetal heart was beating slowly the child never breathed, in spite of prolonged attempts at artificial respiration.

At the *post-mortem* examination the heart weighed 10½ oz.; there was slight excess of pericardial fluid. The right ventricle and conus were distended. The pulmonary artery and its two main branches were completely blocked by a cylindrical embolus 14 inches long. The embolus was coiled up in itself and extended through the pulmonary orifice for a short distance into the right ventricle; at one end it measured three-eighths of an inch in thickness and gradually tapered off towards the other end; it had a considerable branch from 2 to 3 inches from its thick end. The edge of the mitral valve was thickened; there was no fusion of the flaps and no shortening or thickening of the chordae. The stenosis was slight.

The lungs were congested and oedematous.

The pelvis and calyces of the kidneys and the ureters were moderately dilated. There was no pyelitis. In the cortex of both kidneys were scattered nodules of caseous material.

The inferior vena cava, the external and internal iliac veins, and the uterine and ovarian veins were normal and free from clot. Unfortunately the femoral veins were not slit up.

Of the eight cases now recorded one (Case 58) was operated on through a Pfannenstiel incision, the wound being closed with silk for the fascia and silkworm gut for the skin; the remaining seven cases were operated on through a longitudinal incision, and the wound was closed by through-and-through stitches of silkworm gut (tied over gauze), silk (continuous for the peritoneum and interrupted for the fascia), and silkworm gut for the skin. All the eight wounds healed by first intention.

In three of the cases there was a departure from the rules given in my Lettsomian Lectures.[1] Thus in Cases 56 and 59 Caesarean section was performed before the tumour was removed, and in Case 63 the tumour (a parovarian cyst) was removed at the thirty-first week of gestation. An improved technique in closing the uterine wound with silk, by which the formation of adhesions of any importance is avoided, inclines me to think that it may be employed more frequently in these cases than was formerly thought advisable. On the other hand, the tragic death of Case 63 causes me to regret having departed from the rule not to operate in the latter half of pregnancy until near term, or during or after labour.

Parovarian Cysts Complicating Pregnancy, etc.

Cases 56 and 63 were small parovarian cysts, in the pelvis. Of the former series, Cases 2, 46, 47, 48, 50, and 51 were also parovarian cysts; of these, Cases 48 and 50 were in the pelvis, and were delivered with difficulty by forceps, one child (Case 50) being born dead.

The recorded cases of parovarian cysts complicating pregnancy, etc., are few in number. Thus, in McKerron's classical work,[2] out of 1,290 cases only 9 were parovarian cysts; of these, six were removed in the third month and the patients went to term; two were removed in the fourth month and one (at least) went to term, although the pedicle was twisted; the ninth of McKerron's collected cases was removed in the sixth month and the patient was delivered prematurely. In Dsirne's[3] collection of cases there were only four parovarian cysts, and the tumours were removed in the fifth, third, fifth, and second months; three of the patients went to term, and one was delivered prematurely at the seventh month. Three out of his four cases had a pelvic abscess in the puerperium.

Of my own eight cases of parovarian cyst only four were seen during pregnancy. Of these, Case 2 was delivered of a living child by forceps, and the cyst was removed eight weeks later. Case 47 had a parovarian cyst of the size of an emu's egg; the pedicle had undergone torsion. It was removed two hours after the occurrence of the torsion at the thirteenth week of pregnancy, together with the ovary, which was infiltrated with blood. The patient aborted twelve days later, but has since had four children (two boys and two girls). This was the only case in which the ovary was removed. In Case 56 the cyst was removed immediately after Caesarean section at term, and thrombosis of the femoral vein occurred. In Case 63 the cyst was removed at the thirty-first week, and death occurred from pulmonary embolism on the twenty-fourth day.

A consideration of McKerron's (9), Dsirne's (4), and my own (8) cases leads to the conclusion that parovarian cysts, intrinsically so benign, have special dangers as a complication of pregnancy. From such a small number of cases it is impossible to establish rules of treatment, and it is greatly to be desired that those gynaecologists who have had a considerable experience will publish all their cases.

My present feeling is strong against the advisability of operating on these cases in the second half of pregnancy, except at term or during or after labour, and for parovarian cysts in the pelvis Caesarean section may be advisable, though rarely necessary for benign non-adherent ovarian cysts.

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TIME-SAVING METHODS IN DIABETIC URINALYSIS.

BY

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FOR the detection of reducing substances in the urine there exists no better test than Fehling's, provided care is taken to see that the amounts of urine and mixed Fehling solutions are equal and the whole raised just to the boil. The presence of glucose will, of course, in a new case showing a low percentage, be confirmed by fermentation with yeast in the Einhorn saccharimeter.

To determine the daily (twenty-four hours) output of glucose a fairly accurate saccharimetry is required, and if dealing with a large number of specimens it becomes necessary to do this quickly and economically. The following procedure has been found of use in the saccharimetry of some 2,000 specimens.

In the case of urine with from 0.1 to 0.5 per cent. glucose, take 2 c.cm. 1 in 10 mixed Fehling's solution in a test tube and about 15 drops of Gerrard's reagent; heat, and as the mixture comes to the boil deliver the urine from a Dreyer pipette a drop at a time. (The advantage of the Dreyer pipette is that, held vertically, it drops very consistently—various pipettes differing very little—22 to 24, say 23, drops to the cubic centimetre, enabling the following simple table to be prepared.)

TABLE I.

Drops of Urine.	Glucose per cent. Calc.	Approx.	Drops of Urine.	Glucose per cent. Calc.	Approx.
5	0.460	0.5	16	0.144	0.1
6	0.384	0.4	17	0.135	
7	0.328	0.3	18	0.127	
8	0.288		19	0.121	
9	0.256		20	0.115	
10	0.230	0.2	21	0.109	
11	0.209		22	0.105	
12	0.191		23	0.100	
13	0.177				
14	0.165				
15	0.154				

Where less than five drops suffice to decolorize dilute the urine 1 in 5 and read as follows:

TABLE II.

Drops of Urine.	Glucose per cent. Calc.	Approx.	Drops of Urine.	Glucose per cent. Calc.	Approx.
5	2.30	2.3	15	0.77	0.8
6	1.92	1.9	16	0.72	0.7
7	1.64	1.6	17	0.67	0.7
8	1.44	1.4	18	0.63	0.6
9	1.28	1.3	19	0.60	0.6
10	1.25	1.3	20	0.57	0.6
11	1.04	1.0	21	0.54	0.5
12	0.95	1.0	22	0.52	0.5
13	0.88	0.9	23	0.50	0.5
14	0.82	0.8			

If less than five drops of 1 in 5 urine decolorize, dilute 1 in 10, or (where the specific gravity exceeds, say, 1032) 1 in 20, and read as follows:

TABLE III.

Drops of Urine.	1 in 10 Urine. Rough percentage Glucose.	1 in 20 Urine. Rough percentage Glucose.
5	5	10
6	4	8½
7	3½	7
8	3	6
9	3	5½
10	2½	5

At these percentages many will prefer to do a formal titration or to use the polarimeter. (Gerrard's reagent is prepared by decolorizing boiling mixed Fehling's solution by means of a 5 per cent. solution of potassium cyanide delivered from a burette.) The polarimeter will nearly always give a lower reading than titration, owing to laevo-rotatory substances. If it is desired to express this as laevulose, multiply the difference by 0.284. On more than one occasion I have found dextro- and laevo-rotatory substances present in such proportions (that is, as 28 : 72) as to give a zero reading in the polarimeter, as against 1 per cent. total reducing substance.

To arrive at the glucose output for the day, look up in Table IV the number of litres corresponding to the number of ounces reported by nurse or patient, and multiply by ten times the glucose percentage. Glucose having been found, ketone bodies are to be looked for. Rothera's test may be done as follows: Make up a batch of 2-gram packets of ammonium sulphate. For the test, empty a packet into a small porcelain dish—say, the bowl of a crucible—add about 2 c.cm. of urine, a few drops of 5 per cent. sodium nitroprusside, and then some strong ammonia. The sodium nitroprusside need not be made up fresh each time; keep in a brown well stoppered dropping bottle, shutting off after use. You will know if the solution goes off by its changing colour—first paling, and then turning green (owing to sulphur compounds in the air).

If Gerhardt's test is positive, the ammonia coefficient ought to be done. Gerhardt's test, it will be remembered, detects relatively considerable quantities of aceto-acetic acid by the cautious addition to the urine of a solution of

iron perchloride, when in a positive case a wine colour, paling considerably on heating (distinction from salicylates, etc.), will develop.

The time-saving method about to be described enables the ammonia coefficient to be determined as a routine if desired. Two data are required—the ammonia percentage and the urea percentage. The ammonia may be determined by Malfatti's method, only slightly modified as below, and the urea by the sodium hypobromite method, using, however, Hinds's modification of the original and unsatisfactory ureameter of Doremus.

In Malfatti's method the reaction of the urine is determined *en passant*, as it is first necessary to neutralize the urine. Proceed as follows: Deliver from a Dreyer pipette into the bowl of a small crucible ten drops of urine, and a drop of phenolphthalein, and from another Dreyer pipette deliver drops of decinormal alkali until the colour appears.

To determine roughly the ammonia for the purposes of the coefficient add now two drops of formalin to the neutralized urine—this will discharge the indicator colour—and proceed to add drops of decinormal alkali as before to reneutralization (when roughly each drop represents 0.02 per cent. ammonia). Table V shows at a glance the ammonia coefficient and will save much laborious calculation. An ammonia coefficient of 10 per cent. or more indicates danger of diabetic coma.

TABLE IV.—*Converting Ounces into Litres.*

Oz.	Litres.	Oz.	Litres.	Oz.	Litres.	Oz.	Litres.	Oz.	Litres.
35	1.00	71	2.03	106	3.03	141	4.03	176	5.03
36	1.03	72	2.06	107	3.06	142	4.06	177	5.06
37	1.06	73	2.09	108	3.09	143	4.09	178	5.09
38	1.09	74	2.12	109	3.42	144	4.12	179	5.12
39	1.12	75	2.15	110	3.15	145	4.15	180	5.15
40	1.15	76	2.18	111	3.18	146	4.18	181	5.18
41	1.18	77	2.2	112	3.2	147	4.2	182	5.2
42	1.2	78	2.23	113	3.23	148	4.23	183	5.23
43	1.23	79	2.26	114	3.26	149	4.26	184	5.26
44	1.26	80	2.29	115	3.29	150	4.29	185	5.29
45	1.29	81	2.32	116	3.32	151	4.32	186	5.32
46	1.32	82	2.35	117	3.35	152	4.35	187	5.35
47	1.35	83	2.38	118	3.38	153	4.38	188	5.38
48	1.38	84	2.4	119	3.4	154	4.4	189	5.4
49	1.4	85	2.43	120	3.43	155	4.43	190	5.43
50	1.43	86	2.46	121	3.46	156	4.46	191	5.46
51	1.46	87	2.49	122	3.49	157	4.49	192	5.49
52	1.49	88	2.52	123	3.52	158	4.52	193	5.52
53	1.52	89	2.55	124	3.55	159	4.55	194	5.55
54	1.55	90	2.58	125	3.58	160	4.58	195	5.58
55	1.58	91	2.6	126	3.6	161	4.6	196	5.6
56	1.6	92	2.63	127	3.63	162	4.63	197	5.63
57	1.63	93	2.66	128	3.66	163	4.66	198	5.66
58	1.66	94	2.69	129	3.69	164	4.69	199	5.69
59	1.69	95	2.72	130	3.72	165	4.72	200	5.72
60	1.72	96	2.75	131	3.75	166	4.75	201	5.75
61	1.75	97	2.78	132	3.78	167	4.78	202	5.78
62	1.78	98	2.8	133	3.8	168	4.8	203	5.8
63	1.8	99	2.83	134	3.83	169	4.83	204	5.83
64	1.83	100	2.86	135	3.86	170	4.86	205	5.86
65	1.86	101	2.89	136	3.89	171	4.89	206	5.89
66	1.89	102	2.92	137	3.92	172	4.92	207	5.92
67	1.92	103	2.95	138	3.95	173	4.95	208	5.95
68	1.95	104	2.98	139	3.98	174	4.98	209	5.98
69	1.98	105	3.0	140	4.0	175	5.0	210	6.0
70	2.0								

TABLE V.—*Ammonia Coefficient expressed as a Percentage to the Nearest Integer.*

Drops of N/10 Alkali.	Percentage Urea.														
	0.8	1	1.2	1.4	1.6	1.8	2	2.2	2.4	2.6	2.8	3	3.2	3.4	3.6
1	2	2	1	1	1	1	1	1	1	1					
2	4	3	3	2	2	2	2	1	1	1	1	1	1	1	1
3	6	5	4	3	3	3	2	2	2	2	2	2	1	1	1
4	8	6	5	4	4	3	3	3	3	2	2	2	2	2	2
5	10	8	6	6	5	4	4	4	3	3	3	3	2	2	2
6	12	9	8	7	6	5	5	4	4	4	3	3	3	3	3
7	13	12	9	8	7	6	5	5	5	4	4	4	3	3	3
8	15	12	10	9	8	7	6	6	5	5	4	4	4	4	3
9	17	14	12	10	9	8	7	6	6	5	5	5	4	4	4
10	19	15	13	11	10	9	8	7	6	6	6	5	5	4	4
11	21	17	14	12	11	9	8	8	7	6	6	6	5	5	5
12	23	18	15	13	12	10	9	8	8	7	7	6	6	5	5
13	25	20	17	14	12	11	10	9	8	8	7	7	6	6	6
14	27	21	18	15	13	12	11	10	9	8	8	7	7	6	6
15	29	23	19	16	14	13	12	10	10	9	8	8	7	7	6
16	31	25	20	18	15	14	12	11	10	9	9	8	8	7	7
17	33	26	22	19	16	15	13	12	11	10	9	9	8	8	7
18	34	28	23	20	17	15	14	13	12	11	10	9	9	8	8
19	36	29	24	21	18	16	15	13	12	11	10	10	9	9	8
20	38	31	26	22	19	17	15	14	13	12	11	10	10	9	9

TREATMENT OF DIABETES BY RAW FRESH GLAND (PANCREAS).

BY

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THERE are many theoretical objections to the use of raw pancreas by the mouth in the treatment of diabetes; the chief are:

1. That the internal secretion of the gland is destroyed and thereby rendered inert by the action of the gastro-intestinal ferments.
2. That the administration of raw gland by the mouth has been tried before in the treatment of diabetes, and has failed in the hands of careful observers.
3. That it is difficult to be certain that the right part of the gland is being administered when given by the mouth.

In spite of these and other objections the use of raw fresh gland has yielded such striking results during the two and a half years I have been using it that I think they are worth recording.

I find that raw gland seems to do all that insulin does in a diabetic case, while it is free from the grave risks attendant on the use of insulin (for example, hypoglycaemia). While so far I have not used it in a sufficient number of cases to claim that it is a complete substitute for insulin, the facts I have collected point in that direction. It renders the urine free from sugar within twenty-four hours of the initial dose; it lowers the blood sugar, and the ketone bodies disappear from the urine. This clearance in twenty-four hours has occurred in all cases in which the raw gland has been used. It has been found that if in the course of routine administration the gland is withheld the sugar constantly reappears in the urine.

The method used in the administration of raw gland is as follows:

The patient is first carefully dieted and kept at rest. If this fails to clear the sugar from the urine he is at once given raw gland and a diet arranged according to his weight and the type of work he has to do. The first essential is that the gland should be perfectly *fresh*. In this I think lies the explanation of the failure of other observers to obtain any useful results with raw gland. I found repeatedly that after keeping and heating the gland was useless; even if taken in large doses sugar invariably appeared in the urine of the patient. So that it seems probable that the internal secretion of the pancreas is a labile substance easily destroyed and rendered inert by heating and keeping.

In the second place it must be given raw, and is best given finely minced. Cooking in any degree renders it useless. The dose which I have usually given—more or less an experimental one—is one tablespoonful of the raw fresh gland substance daily; in one case I found that a tablespoonful every other day just kept the urine sugar-free, only a faint reaction being given on the "off" days. I am now beginning to try larger doses as I feel sure there is no risk of inducing a condition of hypoglycaemia with raw gland, as there is with insulin. The raw pancreas is obtained from the butcher, and whether it be that of sheep or ox or pig does not seem to affect the result.

The first case in which I tried the oral administration of raw fresh gland was in a panel patient, a man who was suffering from a severe form of diabetes, ketone bodies being present in his urine. This was in the summer of 1922, before the introduction of insulin. I first examined him in the spring of 1922, and after treating him for some time sent him into the local hospital. He was admitted and treated by a variety of diets (Allen and modified Allen, etc.), all of which signally failed to do him any good, and he rapidly became emaciated. He came back to me in June, and as an experiment I suggested to him that he should try a tablespoonful of raw fresh pancreas daily. The result was striking: his urine became rapidly sugar-free and he began to put on weight. After three weeks of gland treatment he felt so well that he returned to work, and has since held a responsible position as foreman engineer in an ironworks. Recently—that is, after a lapse of two and a half years—he visited me again, and I found him well nourished, and discovered that he was still carrying on the gland treatment; he informed me that he had not lost a day's work in the interim. I got his blood sugar tested, and found that it was 0.129 per cent.; his urine was sugar-free, but became loaded with sugar when I got him to stop taking the gland for a day or two.

In a number of other cases (about six in all) treated with raw gland by the mouth the same results were obtained. One case (a woman) is worth referring to, as she was treated with both raw gland and insulin, and a comparison of the results obtained seems to indicate that she did better on the former than on the latter.

This patient commenced gland treatment in the spring of 1924 and did very well. In June of that year I described my gland treatment to one of the honorary physicians on the staff of one of the Sheffield hospitals, and on my suggestion he admitted her to his wards so that gland treatment might be carried out under test conditions. Unfortunately, before she was seen by the physician in question an over-zealous house-physician gave her an injection of insulin, and this treatment she has carried on at home since her discharge from hospital.

Comparing her condition now (on insulin) with what her condition was in the spring of last year (on gland) I find that she has lost weight, does not feel so well, and some sugar is to be found in the urine.

These facts encourage me to think that raw fresh gland by the mouth is a substitute for insulin, and that it is a very much better form of treatment, as it is perfectly safe and free from the grave risks that may attend even a small dose of insulin; furthermore, it is less irksome to the patient and less troublesome to the doctor in charge—for all who have had much experience of insulin will agree, I think, that insulin treatment is both troublesome and irksome and fraught with considerable risk to the patient.

It may be objected that the eating of raw gland is a loathsome thing; but patients on gland treatment inform me that it forms quite a delicious meal, especially when taken with lettuce—reminding us in this respect of phthisical patients on raw or very much underdone meat, who tell us how difficult they find it to return to cooked chops and steak, which seem tasteless to them after being used for so long to the more palatable and tasty fare of raw meat.

THE PREVENTIVE MEDICINE OF THE EAR.*

BY

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IT is stated that a learned lecturer on surgery used to preface his lecture on diseases of the ear somewhat as follows:

"There are two kinds of deafness: One, the curable, due to wax, which we treat ourselves, and the other, the incurable, due to some other cause, which we send on to the specialist."

There is a good deal of truth in this statement, and it is certainly of value to inquire to what extent deafness, not due to obstruction in the external ear, can be influenced by treatment. That acute middle-ear deafness can be cured, sometimes with complete return to normal hearing, is within the experience of everyone; but can any real improvement in hearing result when the deafness is due to the chronic disease of the middle or internal ear?

Let us take the middle-ear cases first. They divide themselves naturally into the suppurative and non-suppurative. Where there is chronic suppuration in the middle ear† this can in most cases be cleared up by treatment, but the perforation does not heal and the hearing but rarely improves, and not a few patients do not really thank one for drying up their ear, as they can hear better when it is moist. In middle-ear deafness without perforation of the drum, of the chronic catarrhal type and its many modifications, the outlook is, perhaps, a little more hopeful. In recent cases treatment of a septic focus in the nose, nasopharynx, or pharynx, or catheterization of the Eustachian tubes, may result in benefit to hearing, but the improvement is but rarely marked, while the results of treatment for internal-ear deafness are, I think, even more hopeless.

This does not mean, however, that we can do nothing for the sufferer, for though chronic deafness is very often a progressive disease, it is also in many cases a disease that can be arrested. If we can induce a suppurating ear to dry up and cease to discharge and remain in this satisfactory condition, although no improvement in hearing may take place, any increase in deafness generally occurs very slowly. In cases of middle-ear deafness, also, without perforation or suppuration, much more can be done to arrest the disease than is frequently thought, though not to cure it. Some authorities are accustomed to label all cases of middle-ear deafness in which other members of the family have suffered in the same way, and where low pitched tuning-forks cannot be heard by air conduction, as oto-sclerosis, and, having made up their minds that oto-sclerosis is a progressive disease uninfluenced by treatment, to do nothing further for the patient. I do not for a moment deny the existence of the pathological changes described by Fraser, Gray, and others in connexion with cases of middle-ear deafness with the above symptoms, but I personally can recall only one case of middle-ear deafness in which the nose, nasopharynx, and ear drums appeared perfectly healthy and in which a clear history of previous trouble in these regions could not be obtained when carefully inquired for. A slowly progressive inflammatory process in the middle ear, started and maintained by some infection from the nose or nasopharynx, may apparently go on for years without giving rise to any appreciable deafness, and only when the region of the ossicular joints or the secondary membranes are involved may deafness come on. I feel, therefore, very strongly that even in cases where considerable deafness exists it is our duty to treat any septic focus that may be found, in the hope, not of appreciably improving the hearing, but of preventing further deterioration. Especially is the removal of nasal obstruction or sepsis likely to be of value in cases in which the hearing varies from day to day, or where immediate improvement in hearing follows the passage of a Eustachian catheter. I know quite well that there are some cases that nothing will touch, and have learned especially to fear patients with atrophic membranes, who hear better in a noise. A large proportion of these cases give a history of earache in childhood, and though, when seen, all infection of the nose and nasopharynx may have disappeared, I believe that a good many of them are the result of inflammatory trouble during the early years of life, and that in these cases, although the causative infection in the nose or nasopharynx has disappeared, the infective process still continues in the ears. If this type of case is excluded, my experience leads me to the conclusion that in a large proportion of cases of slowly advancing middle-ear deafness the disease may be arrested or its progress much retarded by dealing with a neighbouring septic focus. I can recall only one case in which I have had reason to regret operation for nasal obstruction in the case of middle-ear disease, but I can remember many in whom the history of deafness, both before and after operation, has made me wish I had operated sooner. In the much fewer cases of internal-ear deafness, where a cause can be assigned, it should, of course, if possible, be removed. I have thought that the progress of those cases due to sclerotic changes in the vessels has been retarded by the adoption of a purin-free diet and flushing out the system by drinking quantities of hot fluids, but it is difficult to be sure of this.

THE PREVENTION OF DEAFNESS.

If the foregoing conclusions be accepted it must of necessity follow that since little or nothing can be done by way of treatment for deafness, except to arrest the progress of the disease, the right thing is to get hold of cases early and deal with the sepsis or other condition producing the trouble; or, better still, to deal with the cause even before the effect is produced. So that the whole art of medicine, as far as the ear is concerned, is preventive—by either dealing with the hygiene of the mouth, ear, nose, or throat, before any changes in the ears occur, or, if this is not possible, directly there is the slightest indication of the commencement of mischief in the ear.

It is most important to remember that, with the exception of tumours, practically all diseases of the ear are due to

* Abridged from a lecture given before the Society of Medical Officers of Health.

† Dr. Kerr Love states that about 1 per cent. of the school children of Glasgow have chronic suppuration of the ear. (*Diseases of the Ear in School Children*, 1919.)

trouble elsewhere, and that in by far the greater number of cases the disease starts in the middle ear. Further, it must not be forgotten that in practically all cases of chronic middle-ear trouble, and in most acute cases, the ear disease is an extension of some chronic sepsis in an adjacent region, and even when acute otitis follows one of the exanthemata, that a septic focus is nearly always present. Hence, in middle-ear suppuration following scarlet fever, some authorities recommend the removal of adenoids as soon as the patient is well on the road to recovery from the disease. To operate for mastoid disease without searching for a septic focus before discharging the patient is as foolish as to open an appendix abscess without searching for the appendix.

The results of careful attention to general hygiene, and especially to that of the mouth, nose, and throat, in preventing deafness is very striking, and it is noticeable how large a proportion of the working classes over the age of 30, who for the most part have had the misfortune to lack this in the past, have some impairment of hearing. Sir George Newman, in his annual report for 1923 as Chief Medical Officer of the Board of Education, tells us that the percentage of children found on routine inspection in London with defective hearing has during the last ten years been halved, and that in Cambridge and Exeter the results have been even more striking; but he hastens to add that while this satisfactory result has been obtained in connexion with children of school age, the proportion of children going to school for the first time at the age of 5 or thereabouts with ear disease has hardly changed at all. This clearly points, as do many other facts, to the necessity of dealing with the beginnings of disease in children below school age, and that it is imperative that the commencement of the disease should be recognized and the first preventive measures taken in the infant welfare centres or the nursery schools. Mastoid disease calling for operation is by no means rare in babies of less than 12 months, and I am of opinion that otitis media is much more common in infants than is generally supposed. I have seen babies with red inflamed drums apparently quite well and happy and but little disturbed by the condition. When an infant or young child persistently rubs his ear, or frequently rubs the back of his head on his pillow, it should be taken as an indication of some ear disease and a careful examination carried out; if adenoids are present they should be removed. The removal of adenoids even in a baby a few days old is a very simple matter, if the proper sized curette is made use of, and it is remembered that, since it is impossible to insert the finger into the nasopharynx of a babe, the curette must serve for both diagnosis and treatment. No anaesthetic is needed, and most babies are quite prepared to enjoy a meal within a few minutes of the little operation, and appear little, if at all, inconvenienced by it. In children who are old enough to tell us when they have pain, two complaints of earache should be sufficient to determine a careful examination for adenoids,* and if they are present even in small quantity they should be removed. Whether the tonsils, unless obviously diseased, should be removed at the same time is a moot point, and all I would like to say here is that on several occasions in which I have removed adenoids only, the subsequent history has led me to regret that I did not remove the tonsils at the same time.

But we ought to be able to prevent ear disease without waiting for deafness, pain, or other ear symptoms. Babies who cannot take the breast or bottle properly usually have adenoids. These should be looked for and removed. Every child also with a running nose needs immediate treatment, for not only may this condition directly encourage the growth of adenoids, but also, possibly without the existence of adenoids at all, a chronic infection of the ear may result. In addition to general hygiene and a sufficiency of vitamin-containing food and fats, there are four points especially worth remembering in the prevention and cure of chronic rhinitis and its ear complications in children.

1. In visiting a number of nursery schools last year I was especially struck by the difference between the children in the open-air and indoor schools. Anything from 10 to 40 per cent. of the children shut in rooms, even though some windows were open, had running noses, whereas in the open-air schools I saw but one or two. It is not always understood that open-air schools need not be very cold even in winter if an efficient system of heating is installed.

2. As soon as children are old enough they must be taught to blow their noses at frequent intervals. They should not pinch the nose with a handkerchief, but should hold the handkerchief a few inches below the nose and blow into this, at the same time blocking one or other nostril by a finger pressed on to the side of the nose. It is wonderful how early a child will learn this if carefully taught.

3. A little ointment composed of 1 to 3 grains of menthol and 2 to 8 minims of oil of eucalyptus to the ounce of vaseline, applied to the interior of the nose at bedtime, is often a very considerable help in keeping the nose clear and preventing discharge.

4. Constant nose-breathing must be insisted upon. It is but little good to operate for tonsils and adenoids for the prevention or treatment of middle-ear deafness unless at the same time the child is taught to breathe constantly through the nose. I have seen cases in which tonsils and adenoids have been completely removed, but in which the habit of mouth-breathing still remained, and in which deafness steadily progressed until this habit was got rid of. To cure children of mouth-breathing deep breathing exercises are very helpful. In these the mouth is kept constantly closed, both during inspiration and expiration, and breathing is carried on entirely through the nose. Children are still taught to breathe in through the nose and out through the mouth by some teachers. This is exceedingly harmful, for the following reasons: In the first place, it is quite clear that no one can breathe in and out through the nose unless the nose is fairly clear—that is, free from excessive secretion—but it is quite easy to breathe in through the nose and out through the mouth with the nose full of mucus, as each inspiration draws this material further back until it reaches the pharynx and is swallowed by the child. Inspiration is followed by expiration, after which there is a very short period of rest. At the conclusion of expiration with the mouth open the child finds itself in a position in which a definite muscular effort (that is, shutting the mouth) is required before starting the next inspiration, if it is to be a correct one. There is a strong tendency for this muscular effort to be deferred, with the result that the child starts the new inspiration, as he finished the previous expiration, with the mouth open. It is essential, therefore, that all breathing exercises should be carried out with the mouth closed the whole time. They should be repeated frequently rather than carried out for a longer period at less frequent intervals. At night a piece of 1-inch rubber adhesive plaster about 2 inches long can be placed vertically between the upper and lower lips, or a piece of thin rubber sheeting, such as dentists use, 6 or 8 inches long by 2 or 2½ inches wide, can be placed over the lips and tied tightly at the back of the neck by tapes at the four corners. In many cases, however, the cure of mouth-breathing cannot be carried out except by constant supervision of the child by someone whose business it is to remind him to close his mouth whenever it is seen open.

* The examination of the nasopharynx of several hundred boys, aged from 9 to 16, by the mirror, has shown that some quantity of adenoids was present or had been removed in about 80 per cent.

PRACTICAL POINTS ON PELVIC PAIN.

BY

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At the December meeting of the Edinburgh Obstetrical Society Professor Ranken Lyle of Newcastle read a paper on pelvic pain in its relation to neurasthenia, which provoked certain thoughts in me which I here seek to set in order.

I gather that Professor Lyle finds many patients who complain of pelvic pain, and who may or may not be found to have some demonstrable pelvic abnormality—for example, a uterine displacement—but whose symptoms he ascribes to neurasthenia and not to anything abnormal found in the

pelvis on examination, and whom he treats on anti-neurasthenia lines, with favourable effect in a good proportion of cases. The paper raised much discussion and a considerable amount of good-humoured adverse criticism. I do not write this paper with a view to criticism.

I shall attempt no proper definition of the condition called neurasthenia, but perhaps, for the purpose of this paper, a sufficient working definition would be that neurasthenia is a state in which the vital processes (nervous, etc.) are working on a lower grade than their usual and proper standard. Thus a lack of balance is set up between the result required and the means of producing that result. To all appearance the organs may be perfectly healthy.

The question may be asked, Can pain be caused by this upset of balance alone? I think it is reasonable to suppose that such may be the case. We should hardly be aware that we have internal organs—heart, lungs, stomach, and so forth—because they should act so perfectly that no inconvenience is caused. But if the workings are with effort (that is, on the part of the vital processes), then surely it is to be expected that discomfort will be the result, and this, accentuated, may develop into actual pain, the tissues being healthy otherwise. It is just as in the case of a wheel rotating stiffly, or even with squeaking, if the oil has run dry. The wheel and its bearings are all right, but there is a lack of proportion between the rotations taking place and the amount of oil available for efficient running.

No doubt neurasthenia is accountable for much trouble even of an apparently localized sort, but one must not be guilty of making such a diagnosis too easily. It is a tempting diagnosis to make, for the word has an attractive ring about it—it sounds almost scientific—and it pleases the patient's friends and solaces the doctor's diagnostic conscience. But what of the poor sufferer, who all the time may be afflicted with a really painful organic disease?

The first advice I would offer is: Diagnose neurasthenia last of all, after carefully excluding all other possibilities, the doctor not confining himself to gynaecological possibilities. I would suggest two safeguards against the too hasty diagnosis of neurasthenia in cases of pelvic pain.

First safeguard: Examine such patients first of all without an anaesthetic in order to localize the pain and to estimate, as nearly as possible, its severity. In virgins a rectal examination should suffice, along with a careful abdominal examination instead of a vaginal one.

But, one may say, a neurasthenic patient is sure to make a fuss and complain of tenderness whether it is there or not. This may be so far true, but if the site and degree of tenderness are the same on more than one occasion, the circumstantial evidence will be strong in favour of an organic lesion. Also, I think the experienced examiner will seldom be deceived. I should say that a tenderness due solely to a neurasthenic state is not likely to be so intense nor so constant as a tenderness due to an organic lesion. This, however, may be a debatable point.

Having examined in this way and formed an estimate of the presence, site, and degree of tenderness, an examination under a general anaesthetic may then be made, if required.

Second safeguard: Examine for the presence of regional cutaneous hyperaesthesia. This is, in my opinion, of some value if positive for a given area in intelligent patients, but it is of little moment, probably, except as an adjunct to other methods of examination. This test, giving a negative result, may be considered as almost, if not quite, valueless.

The next point I bring forward about pelvic pain in women is that it is, in my experience, very much more common on the left side than on the right. I think this will be readily conceded by gynaecologists. There are certain anatomical conditions which would appear to explain this inequality.

(*a*) The presence of the pelvic colon on the left side may predispose to pain in three ways:

1. The loaded colon may sag down into the pelvis and lead to pain from dragging on the mesentery.

2. Overdistension of the pelvic colon may lead to colicky pains, especially if the faeces are large and hard and tend to become impacted in the rectum. On the other hand, colicky pains in themselves are possibly more commonly complained of on the right side in the region of the caecum and appendix.

3. The loaded pelvic colon or rectum may cause direct pressure on the left ovary in a way in which the caecum is very unlikely to do on the right one, especially if the ovary is prolapsed into the pouch of Douglas, as is often the case in conjunction with retroversion or retroflexion of the uterus.

(*b*) Pelvic varicocele. I believe this is a condition which is more common than is often supposed. It is not easy to diagnose from examination, as the veins are apt to empty when the patient is lying down. For the same reason it is not usually very marked when the abdomen is opened, especially if the Trendelenburg position is employed. If the condition is suspected from symptoms, it would seem wise to examine the patient per vaginam in the erect attitude, and preferably after she has been going about or standing for some considerable time.

One would expect pelvic varicocele to be more common on the left side than on the right, since the left ovarian vein passes upwards to enter the left renal vein at right angles, there being no valve at the junction of the two veins. The right ovarian vein enters the inferior vena cava at an acute angle, the flow of blood in the two vessels being almost in the same direction. The orifice where the right ovarian vein joins the inferior vena cava is guarded by a valve. Thus there is more liability for backward pressure to take place on the left side than on the right.

Constipation, as well as anatomy, may be a predisposing factor in this condition of pelvic varicocele, especially on the left side. An attempt must early be made to overcome constipation in cases of pelvic pain due to conditions (*a*) and (*b*).

We are now in a position to take a further step and consider certain lines of treatment which may be adopted. Let us suppose that the condition is something like this: The patient suffers from pelvic pain on one or other side, and this has lasted, in all probability, for several months at least. She has had drug treatment and her bowels have been attended to. Still the pain persists. It may be aggravated by menstruation, but not necessarily so. Examination without an anaesthetic elicits definite tenderness in one or other lateral fornix, the degree and site being unchanged to any marked extent on re-examination. An area of cutaneous hyperaesthesia corresponding to pelvic organs, such as ovaries, may have been mapped out. Such conditions as chronic appendicitis, ureteral stone, etc., have been ruled out. Neurasthenia has been carefully considered but has been excluded; or treatment for neurasthenia may have been unsuccessfully tried. Something must be done, as the patient is obviously suffering genuinely, and yet nothing but localized and persistent tenderness can be made out.

In such a case surely one is justified in recommending an exploratory laparotomy. After all, a bimanual examination is not always very conclusive. It is not a very fine test, and it varies in its acuteness with the skill and experience of the examiner, as well as with the condition of the patient—for example, as to adiposity and muscular resistance. So we open the abdomen and find things fairly normal. If there is some cystic condition of the ovary, such as a small luteal cyst, a partial resection of the ovary may be done, or follicular cysts may be punctured, although it is a question if they cause pain, as they are in so very many cases symptomless, being so common as to be hardly pathological when small. But if nothing at all is found to be abnormal, and yet one feels quite sure that the tenderness was definitely referable to tube or ovary of one side, can nothing be done? Are the alternatives only to close the abdomen and so give no relief to the patient, or to remove an apparently healthy ovary and tube, or ovary alone? I think a middle course may lead to success in at least a certain number of cases. At any rate, it may well be tried.

It seems reasonable to suppose that something of the

nature of neuralgia may at times attack the ovary, an organ well supplied with nerves.[1] If so, it is reasonable to treat such a condition in the same way as neuralgia elsewhere. If drugs have failed, then operate. The injection of alcohol would hardly be recommended for ovarian pain, but the nerve supply, or a considerable part of it, if not all, may be cut off by simply dividing the suspensory ligament of the ovary. This, of course, means division of the ovarian artery and vein too, but the ovary will still have a sufficient blood supply to keep up its nourishment, and, that being so, ovulation and endocrine secretion should not be interfered with, unless the division of its nerve supply should so far impair these functions, which is not likely.

This treatment would particularly apply if there were only one remaining ovary in a patient who had not reached the menopause. The pain must be relieved in some way, and the ovary must be spared if possible. On the left side the division of the ligament may serve to straighten out the pelvic colon and thus help the flow of contents. No claim to originality is made here for the idea of dividing the ovarian nerve supply, but the suggestion seems a practical and reasonable one, and therefore I emphasize it.

I should like, in conclusion, to stress the two points brought forward early in this paper:

1. Diagnose neurasthenia last of all, after excluding all likely causes of pelvic pain.

2. In cases of pelvic pain make it a rule to examine first of all without an anaesthetic, even if such is necessary for a full diagnosis afterwards.

REFERENCE.

[1] Abel and McIlroy: *Proc. Roy. Soc. Med.*, Obstet. Sect., May, 1913, vol. 6, No. 7, p. 240.

DIPLOPIA IN ENCEPHALITIS LETHARGICA.

BY

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THAT diplopia is one of the earliest symptoms of encephalitis lethargica is well known. The diplopia may, of course, be that typical of an involvement of one or more of the extrinsic ocular muscles and may occur with or without a manifest squint, but cases also occur in which the diplopia cannot be attributed to this cause. The patient in the following case is typical of many who, during a recent epidemic of encephalitis lethargica in this city, applied to the ophthalmic clinics for relief of the diplopia.

A girl, aged 19, complained of diplopia. Two evenings before seeing me she had headache and giddiness and felt sick; on the following morning she awoke with diplopia; it was very troublesome when looking at distant objects, but was hardly present at all in near vision. There was no drowsiness. The temperature was 101°. There was no history of any recent illness. Examination of the eyes showed no ptosis, no manifest squint; the pupils were normal in size, equal, and reacted to light and accommodation. The movements of both eyes were normal. Both optic discs and fundi were normal. Examination of the diplopia showed it to be homonymous, with erect images, the unusual feature being that there was no alteration in the relative positions of the two images in any of the six cardinal directions of gaze. The first examination was carried out with the candle at 3 metres from the patient; a second examination at 5 metres showed the two images to be further apart than they were when the examination was performed at 3 metres, but again their relative positions remained the same in the six cardinal directions of gaze. On approximating the candle to 2 feet from the patient the diplopia ceased to exist in any of the six cardinal directions of gaze.

This case could not have been one of paresis of any individual muscle, as there was no increase in the distance between the true and false images in the direction of action of any muscle; nor could spasm of accommodation produce this type of diplopia, as in this case the double vision would have increased as the object was brought nearer the patient and diminished the further it was removed.

The diplopia disappeared in a week from its onset and the patient made an uneventful recovery, for the time being at any rate. No convergent squint ultimately appeared, as has happened with some of the patients under observation.

It is probable that these cases represent a rather rare condition of paralysis of divergence. Dunnington[1] of New York describes in detail three exactly similar cases occurring in an epidemic of encephalitis, and Holden[2] one such case, but these writers would appear to consider the condition to be one of great rarity, whereas in our series of cases this type of diplopia was so common as an early symptom that we began to regard it as pathognomonic of the disease in this particular epidemic. Another interesting fact was that this type of diplopia, with giddiness and rise of temperature, were the only symptoms complained of, and that many of the patients showed no other symptom but made a rapid recovery. That we were dealing with encephalitis lethargica was clearly manifested by the fact that a few of the patients with these symptoms developed the more serious accompaniments of the disease at a later date.

Duane[3] points out that the power of divergence is an active as well as a passive movement, and is brought about by a simultaneous equal contraction of both external recti accompanied by a simultaneous equal relaxation of both internal recti. This complex action is controlled by a definite nervous mechanism, and the loss of power means an innervational disturbance and not a muscular defect. This mechanism is probably controlled by a centre situated close to the sixth nerve nucleus. This would explain the fact that these cases are often followed by convergent strabismus due to a sixth nerve lesion. In making a diagnosis, paralysis of divergence is easily confused with paresis of one of the internal or external recti muscles, but can be differentiated by observing that the diplopia does not increase in the direction of action of these muscles, and that the separation between the true and false images remains unaltered so long as the distance between the eyes and the object is kept constant.

REFERENCES.

[1] Dunnington: *Arch. of Ophthalmol.*, vol. liii. [2] Holden: Ibid., vol. l. [3] Duane: Ibid., vol. xxviii.

PAROXYSMAL TACHYCARDIA IN AN INFANT.

BY

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IT will be of interest to record this case of paroxysmal tachycardia on account of the very early age of the patient, and because it is an outstanding example of the vast amount of distress a young child's heart will stand.

The patient was a female child, aged 8 months, and the attack lasted for eight days without cessation. The heart could at no time be counted, but was roughly estimated at somewhere about 200 to 300 beats to the minute. The onset of hepatic pulsation, Cheyne-Stokes breathing, and severe bronchitis during the illness all had apparently no detrimental effects on the recovery. The child is the youngest of a family of three, having been born quite normally and fed on the breast, and the breast alone, up to the time of the illness. She had been examined at the local clinic at about the age of 6 months, and was found to be a perfectly healthy, contented, and exceptionally well nourished baby. The mother and the other children are all quite healthy, and the former undoubtedly makes an ideal mother.

I was called to see the baby on a Thursday afternoon because the mother had become anxious about its condition during the previous night on account of vomiting and restlessness. The child had been ill the whole night, but the mother had concluded that she was tired by a journey into Cardiff and a long day out in the sun the day previous. The mother noticed that the urine had become scanty, the evacuations a trifle loose and green, and that there had been no desire for food; this was most unusual in a child who had been accustomed to be most hearty.

The baby, when I first saw it, was apparently in no serious condition; its cheeks were rosy, its breathing was natural, and it had all the appearances of a child who was in perfect health but who was apparently somewhat restless and irritable as the result possibly of an irritable tooth. The temperature was just 96°, but no pulse could be felt at the wrists. There was nothing to be discovered in its abdomen nor on rectal examination. The chest, as far as the lungs were concerned, was devoid of physical signs. The nervous system was normal, all the reflexes being present and

normal in response, but during the examination the child had one or two convulsive attacks of a very slight degree. On examination of the heart, however, it was found to be beating very forcibly and at such an extraordinary rhythm that it was impossible to count. There was, as far as one was able to make out, no valvular or muscular disease or deficiency.

On this evidence, the green stools, the convulsive attacks, and the extraordinary cardiac rate, I concluded that the child was suffering from intestinal irritation and toxaemia, and advised treatment with castor oil, hot baths, rectal wash-outs, and 1-grain doses of hydrarg. c. creta. The child seemed to improve after the first hot bath, but the heart did not slow down at all. A restless night followed, and when morning came I advised consultation with another practitioner, Dr. Owen Jones, who confirmed the bad prognosis. Dover's powder (1 grain) was given three times a day, and certainly afforded a little more rest that night, but had no effect on the heart, and the following day hypodermic doses of digitalin (1/100 grain) were continued every four hours, with brandy and milk by the mouth. On the evening of Saturday, as the child had not improved and the heart condition showed not the slightest response to digitalin, I further advised a consultation with Dr. Ivor Davies of Cardiff, who saw the child with me that night, but nothing fresh was discovered. Lumbar puncture was performed, and cerebro-spinal fluid, which was under great pressure, was removed to about 3 c.cm. It was clear, and to the naked eye normal. A hypodermic injection of camphor in oil was given and the digitalin was repeated every four hours throughout the night.

The following day, Sunday, there was still no change. The child was put back on to the breast and took the feed quite normally without distress throughout the day. The liver had become enlarged and pulsated, and the heart was a trifle outside the nipple line; the rate remained the same. Digitalin was repeated throughout the Monday, but had no effect on the heart. Doses of atropine sulphate (1/200 grain) were administered without effect. Cheyne-Stokes breathing set in on Monday night, and I concluded that the child could not live until the morning, although its appearance remained good.

On Tuesday the temperature rose to 102° and râles developed at both bases. The heart beat as rapidly as ever. Atropine was again repeated, with no success. A tight abdominal binder in place of a knitted one was applied that night, but it gave rise to such distress in so short a time that it was at once removed. On Wednesday the cough became much more distressing and the symptoms more alarming. A steam tent was fixed up, all stimulants were withdrawn as useless, and the breast feeds with meat extracts only were continued. On Thursday morning, the eighth day of the attack, the heart still continued in its delirium, after a rather more peaceful night, but the bronchitis seemed improved and the child seemed less distressed. About midday the nurse noticed a change in the child. Its pulse was once more to be felt at the wrist; it passed a large quantity of urine, and in every way seemed better. On examining the heart it was found to have regained its normal rate. The liver was once more its normal size, and the breathing was more natural.

In November, 1924, the child had another attack, which lasted only twenty-four hours. The heart had been carefully examined during the interval and found to be perfectly normal. An attempt was made to take an electro-cardiographic tracing, but the age of the patient made it most difficult. In spite of this a normal tracing was produced.

Note by IVOR J. DAVIES, M.D., M.R.C.P.

The infant was seen in consultation two days after the onset of the illness, and, although semi-conscious, was but little distressed by the tachycardia, being most comfortable when nursed in an almost upright position. The colour was good, and respiration, except for being a little hurried, was not embarrassed. The temperature was normal. The pulse could not be felt at the wrist, but was feebly present in the brachial arteries. The impulse was not palpable, the sounds were best heard in the fifth space just within the nipple line, and were clearly audible for a short distance outside this position, and tic-tac in character. There was no bruit. The rate was very rapid and could not be estimated with any degree of accuracy. The lungs showed a little congestion of the bases. The liver was palpable a fingerbreadth below the costal margin. There was no muscular spasm. The abdominal and tendon reflexes were normal. The lumbar puncture was performed without discomfort and with results as described.

A diagnosis of simple paroxysmal tachycardia was jointly made, because of the abrupt onset following some gastro-intestinal disturbance, the marked tachycardia, which was apparently unaffected by posture or the exertion of crying or by digitalis, and the absence of evidence of any underlying infection. This opinion was subsequently confirmed by a sudden termination with the passage of a considerable amount of pale urine. A guarded prognosis was given because of the signs of early heart failure, but on the whole our view inclined to recovery.

A firm abdominal binder caused discomfort and was discontinued. It was decided to rely mainly upon the small doses of opium and frequent small feeds, which were very well taken.

The occurrence, a few months later, of a second attack, with similar features but of brief duration, makes the diagnosis of paroxysmal tachycardia practically certain. The child appeared to be perfectly healthy and lively a little later when brought up for electro-cardiographic examination. After much difficulty the mother succeeded in keeping the child quiet for a few minutes, and a tracing was successfully taken. The record was normal in all respects.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

A CASE OF AVULSION OF THE PARTURIENT UTERUS.

IN the spring of 1915 I was asked by my friend, the late Dr. X, to give an anaesthetic for him in a midwifery case he expected to attend in a few weeks. I declined to do this, but offered to help him in any other way if he required more assistance. I heard nothing for some little time, until one morning he asked me to see the woman, who had been confined during the night, as soon as possible. He told me that Dr. Y (now dead) had helped him, and I stipulated that Dr. Y should be told of my visit and asked to be present. The invitation was given, but not acted upon.

Upon arriving at the house Dr. X told me that Dr. Y had delivered the woman with forceps, and that he, Dr. X, had given chloroform. The woman had had several children and had always required help in this form. After the child was born Dr. Y removed the placenta (query, by traction on the cord), and, making a further vaginal examination, said, "There is a large fibroid hanging in the vagina; I think I can pull it out." Then, what Dr. X described as "a frightful struggle" took place, and eventually Dr. Y pulled a large mass out of the vagina, looked at it, and, without saying a word, took it downstairs with him. The patient bled furiously for a short time and became very ill. As soon as she rallied Dr. X went downstairs and found Dr. Y sitting gazing at the supposed fibroid, which was on a dish in front of him. Dr. X asked, "Is that the uterus?" and Dr. Y admitted that it was. They discussed what was to be done, and they decided to burn it, and the uterus was put on the fire and covered up with coal.

After upbraiding Dr. X for allowing the destruction of the specimen, I went upstairs to see his patient. She was very ill. Palpation of the abdomen proved the absence of the uterus, and this was confirmed when I made a vaginal examination to make sure that no intestine was prolapsed into the vagina. There being no complication of that sort, I decided that she had the best chance of recovery by not attempting her removal at that time. The vulva was cleaned up, an antiseptic pad applied, and all douching forbidden. Dr. X asked me to see her daily for a few days, and on the third day we were told that the woman was passing faeces from the vagina. We confirmed this, but made no alteration in the treatment, which consisted only of quiet, feeding, and external cleanliness.

After ten days or so I had her removed to the Southport Infirmary, where she could be better attended to. Some ten days later I had her taken to the theatre, and under a general anaesthetic, and with the assistance of Dr. W. A. Mackay, made a thorough examination. The uterus had gone. The opening into the abdominal cavity had healed up, the tear into the rectum was found high up in the vagina and was large enough to allow all faecal matter to pass through it.

As I had no permission to do any operation the woman was put back to bed and next day I offered to repair the recto-vaginal fistula after doing a preliminary colostomy. The woman declined to submit to this, and after she had regained her strength she was sent home. Dr. X some three or four years later told me that she had been sent to one of the Liverpool institutions for some operation, from the performance of which she did not recover.

Southport. FRANCIS J. BAILDON, M.B., C.M.

CONCURRENT HERPES ZOSTER AND VARICELLA.

ON January 26th I was called to a man aged 73. I found him suffering from very intense herpes zoster of the right side, running across the right scapula, under the right axilla, and slightly upward on to the right thorax He was also suffering from well marked generalized and typical varicella, including papules on the scalp. He was not ill. Dr. W. S. H. Briand of this town kindly saw him with me on January 27th and confirmed the double diagnosis. Both eruptions were typical. The herpes zoster came out on

January 23rd and was painful; the first crop of generalized eruption came on January 25th; it itched, and the patient states that the feeling is quite different.

Within the last three years I have had two distinct cases in which an adult has had herpes zoster and a child contact has developed varicella just over two weeks later—in one case a man and his little niece, in the other a mother and her son and his little friend who was staying in the house at the time of the eruption of the herpes zoster and left a few days after; both children had the eruption at the same time. To my mind these three coincidences establish the relation of the diseases. The age of the patient whose case is described above is also of interest.

Herne Bay. R. C. T. EVANS, M.B., B.S.

SEVERE DERMATITIS PRODUCED BY THIAZOLES.

DEHYDROTHIOTOLUIDINE AND CERTAIN MERCAPTAN DERIVATIVES.

IN connexion with investigations of the chemistry of the benzothiazoles which are being carried out in this laboratory, it has frequently been necessary to work with quantities of the well known dye intermediate, 4′ amino 1 phenyl 5 methyl benzothiazole, or, as it is more commonly termed, dehydrothiotoluidine, and this base and certain related compounds have been found to have a peculiar action on the skin of the face and hands.

Hot solutions of dehydrothiotoluidine in contact with the skin produce an unpleasant form of dermatitis which is worst between the fingers of the experimenter; the irritation is intense during the first few days. The skin rises in practically colourless semi-blisters, which, on being broken, liberate an almost colourless infectious liquid which spreads the trouble.

Observations of this nature have already been made by other workers in the field of thiazole chemistry; thus A. von Hofmann (Berichte 1887, xx, 2251), at the end of one of his papers on amidophenylmercaptan, states that the vapours of this compound have a most detrimental effect on the skin, producing intense irritation and swelling, the affection spreading to all parts of the body which come into contact with the part attacked. I have observed a similar effect with the higher homologue of this compound obtained in the alkali fusion of dehydrothiotoluidine—that is, ortho-amino-parathiocresol—which has a similar physiological action in contact with the skin. Baumann (Berichte 1887, xx, 2251), in connexion with his researches on mercapturic acid, states that effects similar to these were so severe that he was obliged to abandon his investigations on a number of occasions.

In my case the blisters, etc., on the first occasion lasted for several days. Bathing the hands with very hot water has the effect of removing the irritation to a certain extent; bathing with a 2 per cent. solution of phenol in water was also found to have a beneficial effect.

CHLORACETANILIDES.

In connexion with researches on the synthesis of thiazoles it became necessary to investigate the series of changes:

Chloracetanilide → Thiocyanacetanilide →
Labile ketothiazole → Stable ketothiazole

and hence necessary to work up quantities of the anilido derivatives of monochloracetic acid which have been found to possess most unpleasant properties.

The arylamino derivatives of chloracetic acid are highly poisonous substances; they attack the skin in a most disagreeable manner, producing symptoms similar to those of "poison ivy," causing violent irritation.

Chloracetparabromanilide is a most violent poison; so unpleasant are its physiological properties that Johnson and Bristol (*Journ. Amer. Chem. Soc.*, 1903, xxv, 484) were compelled to abandon their investigation on the thiohydantoins. This anilide apparently attacks the connective tissue beneath the skin, causing a superficial oedema and albuminuria, the effect lasting over a month. In my case, however, the customary tests for albumin in the urine gave negative results.

R. F. HUNTER, B.Sc., A.R.C.S., F.C.S.

Reports of Societies.

FIBROSITIS.

A DISCUSSION on the nature, prevention, and treatment of fibrositis took place at the Royal Society of Medicine on March 4th and 5th. The Sections of Balneology and Climatology, Epidemiology and State Medicine, Medicine, and Therapeutics and Pharmacology united for the purpose.

Dr. W. EDGECOMBE of Harrogate, president of the first of these sections, who took the chair, outlined the scope of the proposed discussion. He said that it must be limited to the non-articular forms of so-called rheumatic disorders; to include arthritis, with which anatomically and etiologically fibrositis was bound up, would make the subject too wide. He quoted the report of the Ministry of Health on the incidence of rheumatic diseases, issued early in 1924, to the effect that one-sixth of the industrial invalidity of the country was due to diseases classed as rheumatic; these diseases each year cost the approved societies nearly £2,000,000 in sick benefit, and involved a loss to the nation of three million weeks of work—this among the insured population alone. The interest of the discussion would chiefly centre around pathogenesis. Until recent years the condition was looked upon as of metabolic origin, but lately the importance of infection in the causation of fibrositis, as of arthritis, had been fully realized, and numerous observers had established the overwhelming part which infection played as an etiological factor. To such an extent indeed had infection been stressed that it might be the pendulum had swung a little too far in this direction. An important point for discussion was whether there were forms of fibrositis of purely metabolic origin and wholly independent of infection. It seemed clear that no one organism was responsible for the pains of fibrositis. Granted that infection by micro-organisms was the dominating factor, the soil for the infection had to be considered very carefully also. Many people harboured foci of infection without suffering from rheumatic manifestations until something occurred to break down their resistance. In some cases no source of infection could be found, and these might recover by treatment wholly directed to putting right the metabolic derangement, but it was extremely difficult to prove that there were cases of purely metabolic origin. The disturbances of metabolism with which fibrositis was most commonly associated were the gouty state, hyperglycaemia, and the results of dietetic errors. The frequent association of fibrositis and neuritis with hyperglycaemia lent support to the view that chemical changes alone were competent to give rise to the condition. If the metabolic origin were denied and the bacterial origin were regarded as universal, treatment on any other than antibacterial lines must be of little use. Treatment might be discussed from the aspects of prevention and of cure. Preventive treatment should embrace the better housing and occupational conditions of industrial workers, the avoidance of damp and chill, better ventilation, the provision of baths and drying-rooms at works, and so on, together with attention to the common sources of septic infection, such as the tonsils and teeth. General curative treatment included first of all the detection and removal of any source of septic infection, but it must also be directed to the underlying metabolic derangement. The local treatments were varied and well known. In his experience the results of vaccine treatment, though striking in a few cases, were disappointing in the majority, especially in the chronic forms, if this treatment was used alone without other measures. Spa treatment offered advantages in the management of these cases, and the Ministry of Health might seriously consider whether spa treatment could not be made available to large numbers of the industrial population whose working life was seriously interrupted by this invalidity. If a series of cases of sciatica or lumbago were sent for institutional treatment to one of the spas and were compared with controls in the shape of similar cases receiving the ordinary

domiciliary treatment, he believed it would be evident that spa treatment could effect a great economic saving.

Dr. J. A. GLOVER (Ministry of Health) gave a summary of the investigation conducted by the Ministry in 1922, when forty-nine practitioners undertook to act as observers with regard to the incidence of rheumatic disease among 92,000 insured persons. It was proved that fibrositis was extremely common. Out of 58,000 males of all ages from 16 upwards, there were 1,100 cases of fibrositis. Half of these were cases of lumbago, one-third were cases of muscular rheumatism other than lumbago, and nearly one-sixth were cases of sciatica or brachial neuritis. The figures for females were less dependable because so many women went out of insurance on marriage that it was difficult to get a fair sample. In muscular rheumatism, excluding lumbago, the female attack rate was considerably higher than the male in every age group. In lumbago, however, the male attack rate was far higher than the female at all ages, and in the youngest group (16 to 24) more than double. In the case of brachial neuritis nearly three women were attacked to every two men. The comparative absence of lumbago among women might be partly ascribed to the smaller occupational stress experienced by women on the lumbar muscles, and the same might explain the higher sciatica incidence in the male; but it was difficult to see why women should suffer more from brachial neuritis, unless it was accounted for by the greater openness of their dress. He gave some statistics obtained in Leipzig fifteen years ago, where the attack rate in males from 16 to 24 was nearly four times as great as in this country; this was not due to the inclusion in the Leipzig figures of attacks of lighter character, for the period of absence from work was longer in Leipzig all the way through. With regard to occupation, it was generally found that metal workers were particularly affected with lumbago, due, no doubt, not only to the heavy work, but to the liability to chill. Lead also was an occupational factor of importance; a considerable proportion—13 per cent. according to Goadby—of cases of lead poisoning showed rheumatic manifestations.

Sir WILLIAM WILLCOX recalled that, four years ago, in a discussion at the society, when he mentioned the word "fibrositis" a smile went round the room, evidently due to the belief that this was a fictitious disease. Recent work had shown by actual microscopical and histological examination the existence of chronic inflammation in the tissues. The lumps and thickenings felt by a skilled masseur in the parts of the body affected by fibrositis had an actual existence. In France a good deal of attention had been paid to radiographic examination, and he exhibited some *x*-ray photographs taken by Dr. Gastou, of the St. Louis Hospital, Paris, which showed shadows in the vertebrae caused by a deposit in a severe case of fibrositis. It was well known that fibrositis resulted from a number of specific infections, such as gonorrhoea, bacillary dysentery, Malta fever, pneumococcal infections, the enteric group of diseases, scarlet fever, tuberculosis, and syphilis. The President had asked whether fibrositis was always due to bacterial infection. The speaker was bound to agree that metabolic conditions such as gout and toxic conditions such as lead poisoning were commonly associated with fibrositis, but he was inclined to take the view that in these conditions there was a superadded infection as well. In most cases of gout there was evidence of intestinal toxaemia. Everyone would agree as to the important part played by focal sepsis as a cause of fibrositis. In the appreciation of focal sepsis British medicine was far in advance of Continental. Often very careful search was needed to find the focus of infection. Sometimes a case of advanced arthritis or fibrositis was met with in which there was no obvious focus of infection, though he believed such cases to be comparatively rare. During the last four years he had had at least thirty cases of fibrositis where an *x*-ray examination had disclosed an opaque antrum, although there were no symptoms of any naso-pharyngeal disease. The antrum proved to be filled with pus, and the treatment of this condition was usually followed by rapid and progressive improvement. It was important to realize that when a focal infection had acted as such for a certain time it would not be long before secondary infections followed, the colon might be invaded, or the tonsils or teeth, and one had to remember that there was lymphoid tissue not only in the tonsils but scattered through the pharynx and other parts of the body. Thus a secondary infection might go forward without any gross or obvious focus. Fibrositis was a kind of gauge which measured the balance between the infection and the immunity of the patient. Normally a certain amount of absorption of toxins of bacterial origin must be constantly taking place. In health the body fluids were able to neutralize these toxic substances; in fibrositis the toxins were in excess of the protective substances, and it was this excess which determined the degree of the fibrositis. He went on to call attention to two factors not generally realized at the present day. The first was the condition known as sensitization. In many of the cases in which the vaccines failed the reason was that the patient had become sensitized to the infection. Another important factor was the condition known as symbiosis. Here one found a disease caused by the infection of one organism lowering the resistance of the body to the organism causing fibrositis. This was seen excellently in people who had become infected by malaria; these were very susceptible to fibrositis, but if cured of malaria they could put up a fight against the *Streptococcus viridans*, and the cure of the fibrositis followed. The speaker regarded fibrositis, not as a disease, but as a symptom of toxaemia, and evidence of streptococcal toxaemia could be found in most cases on searching. With regard to prevention, what was needed was periodical inspection by those skilled in the search for focal sepsis. If only what was done to some extent in schools could be applied to a larger number of individuals an early development of focal sepsis would be recognized and dealt with, and the health of the community would be enormously improved. No field of public health was more promising. Most of the common disabling diseases which he saw in persons over 40 were due to focal infections. With regard to the treatment, he strongly deprecated the use of vaccines in fibrositis unless the focus of infection had been completely removed. Given this preliminary condition, vaccines were a help in selected cases. Intestinal disinfectants were useful, but not very great reliance could be placed on drugs. Various forms of electrical treatment, poulticing, and the application of heat were of service, and skilled massage in the chronic stage was most valuable. Anaphylactic treatment had been used in fibrositis, but he had not seen any good result from it, and he did not think the method sound scientifically.

Dr. P. HAMILL agreed that a very large proportion of cases were definitely infective in origin. The virulence of the infecting agent was low, but its chronicity was great. The number of organisms that might produce fibrositis was legion. The part played by syphilis was obscure. Some cases of apparently typical fibrositis gave a positive Wassermann reaction, and did remarkably well under anti-syphilitic treatment, but he thought it likely that the syphilis was of importance chiefly in so far as it lowered the resistance of the patient to another infection. Many cases of fibrositis and sciatica were undoubtedly due to colitis and dysentery. The first canon of treatment was to find and eradicate the cause. A careful history was often of great assistance. Cases were met with which gave a history of attacks of lumbago or stiff neck, and in association with each attack an intestinal upset, or, in other cases, sore throat, or slight aching of the gums. Such points in history gave a clear hint as to the source of infection. In the majority of cases, however, no such clues were forthcoming. He urged the importance of *x*-ray examination in all cases in which the teeth were suspected to be the cause of the trouble. Tonsils also were a frequent and unsuspected cause. The abdominal viscera were a great potential source of infection, and the appendix was of importance; often cases which improved up to a certain point, and then went no further, cleared up after the appendix was removed. In his experience chronic pelvic inflammation in women was not associated with fibrositis quite as commonly as one might expect. Having removed the primary source if possible, the next step was to combat

the residual infection. Intestinal intoxication could be diminished by securing efficient evacuation of the bowels. The resistance and immunity of the patient must be raised by every means available, such as an ample and varied dietary, fresh air and sunlight, and attention to housing and sanitation. In this connexion the various health resorts could be of considerable value. He believed there was a definite place for spa treatment in these diseases. With regard to non-specific measures, protein shock would commonly produce a remarkable benefit, but not a lasting one, in his experience. It was more likely to be of value in the early cases before the patient's immunity had reached too low a level. With regard to specific measures, the results obtainable by vaccine therapy, if judiciously carried out, were encouraging. In acute cases, especially when arthritis was coexistent, complete rest with splinting was desired. Where there were contractures, splints and extension should be employed, but splinting must be combined with massage and movements in chronic cases. Heat in various forms acted usefully in increasing the blood supply and releasing the spastic muscles; diathermy was the best method. The chief trouble in long-standing cases was the mental supineness of the patients, who wanted everything done for them, and made little effort to assist themselves; they needed cheerful surroundings and constant encouragement.

Dr. R. ACKERLEY (Llandrindod Wells) said that it was not any specific organism which caused fibrositis, but it might be any toxin which invaded the body. He referred to a discussion which took place in the society as long ago as 1913, when he declared that his clinical experience led him to the belief that any toxin, if retained in the body, was sufficient to cause first fibrosis, and then fibrositis, the first being a gradual and painless process. Owing to the habits of civilized life, toxins, whether metabolic or other, tended to accumulate in the body, partly as a result of repeated infections, but far more as a result of defective elimination. The body tended to let these organisms accumulate in the tissues of lowest vitality, and it was due to this gradual accumulation that these fibrous thickenings and enlargements made their appearance. Everyone who had treated discharged soldiers was aware that fibrositis followed every infective disease—dysentery, malaria, Malta fever, and so forth. Very often the toxins were not in a condition to be eliminated through the ordinary eliminative organs. They were imperfectly oxidized. Imperfect oxidation was one of the most characteristic features of modern life. The conditions under which most people lived, spending hours in stagnant, not necessarily impure, air, led to imperfect oxidation, and this it was which caused the increase of these pains in damp weather. Two years' experience in Egypt showed him that there, with overcast skies on some days in winter and the great humidity of the Nile valley, the people complained of such pains very much more than during the winter in England. It was interesting to see how the fibrous tissues tended to swell up under such conditions. This also he put down very largely to defective oxidation. Any treatment must begin with the complete eradication of any focal sepsis, and then must be directed to restoring function and tone to the various tissues and eliminate the toxins already there.

This concluded the first day's discussion.

At the resumed discussion, with Dr. EDGECOMBE again in the chair,

Dr. W. J. MIDELTON (Bournemouth) deprecated the number of labels existing to-day, which were puzzling and misleading; almost the only label wanted was toxaemia, chronic or acute. He had no faith in all that was said about staphylococci and streptococci. In all cases, he believed, the underlying condition was some result of an earlier infection—measles, scarlet fever, typhoid, and so forth—and the staphylococci and streptococci were purely secondary. One of his theories was "once infected, always infected." He gave particulars and showed photographs of treatment introduced by Dr. P. W. Latham for the fibrous lesions, which in his hands had given good results.

Dr. H. A. ELLIS said that one would imagine from the tone of the discussion that there was nothing in fibrositis but a septic condition; that was true to a certain extent only. Many of the difficulties of the situation would be met by considering the matter from a biochemical aspect as against a purely bacterial aspect. The different incidence between men and women was difficult to understand on a purely bacterial basis. The conclusion he himself had reached was that this was a biochemical condition activated by many causes, of which bacterial invasion was undoubtedly one, but only one. A man could drink port and bring on lumbago, which came under the head of fibrositis; but did anybody think that that was bacterial? Fibrositis fell into two main groups—one in which the activating cause was assimilation errors, and the other in which it was elimination errors. Assimilation errors were those in which there was insufficient food. Cases due to such errors must be treated with acid—phosphoric acid was the best—and the other cases, those of metabolic excess due to elimination errors, had to be treated with alkaline potash—tribasic potassium phosphate he had found most useful.

Mr. J. E. R. MCDONAGH said that fibrositis was an inflammation of the supporting tissues of the body, which included the fibrous tissue. It was seldom that the fibrous tissue alone was picked out; hence fibrositis was more often one of the manifestations of the general involvement of the supporting tissue than a clinical entity. Chronic fibrositis might not give rise to clinical symptoms until all the signs of what was understood to be inflammation had vanished, and in those cases one was dealing more with the result of what had been than with an actively progressing condition. Speaking of fibrositis in women of child-bearing age, he said that it was in this class of case that focal infection would appear to play its chief part; it was most apt to lie either in the teeth, the tonsils, or the bowels. In the majority of cases there was a streptococcic invasion. Although theoretically any micro-organism might cause fibrositis, he doubted whether many cases would be seen if the streptococcus and the gonococcus could be banished. A very large number of women had fibrositis at the climacteric, and this deserved to be regarded as a distinct condition, because it was likely to be due to the chemiophysical changes which the blood underwent at this period. The prognosis was good, and in his experience the condition did not progress to acid arthritis. Gout was not a disease *sui generis*, but merely a clinical manifestation of what might be termed shock taking place in one of the supporting tissues. Chronic fibrositis in elderly people practically never occurred alone; it was merely one of the local manifestations of general fibrosis.

Dr. M. B. RAY said that the general tendency appeared to be to confine the use of the term "fibrositis" to non-articular situations. The huge fibrous envelope which sent prolongations everywhere must of necessity be deeply concerned with all the biological interchanges of fluids which were continually taking place as a result of bodily activity. In ordinary conditions of health and absence of fatigue there was perfect harmony in the interaction between nervous impulse and muscular response. Any obstacle might be due to inefficient removal of the products of muscular activity or changes in the plasma which in some way inhibited the processes of interchange. He did not think that sufficient attention had been paid to the lymph circulation in this condition.

Dr. OLIVER HEATH, as a pathologist, entered a mild protest against the use of the word "toxin" in this connexion. By "toxin" was understood something like that which was produced by the diphtheria bacillus, but with the common organisms which produced sepsis nothing of that kind had been discovered, and he objected to the widening of the term. He gave a description of his own experiences as a sufferer from lumbago. He had tried various simple treatments, including walking, which was sometimes recommended, but which really did not exercise the lumbar muscles at all, and resting, which was equally unavailing for the cure of lumbago. Finally, however, the lumbago disappeared quite rapidly as the result of careful and skilled massage, first applied with a very light touch indeed, in the direction of the lymph flow, until, perhaps within fifteen minutes, it was possible even to knead the part with the knuckles. Later, in an experimental fever produced on himself by the injection of typhoid vaccine into

a vein, intense lumbago was one of the manifestations, and after a time he succeeded in making it disappear by undertaking steady exercise for an hour or two, involving frequent bending forward of the body as though to pick up an object from the ground, and then straightening. This exercise of the lumbar muscles proved very efficacious.

Dr. C. E. SUNDELL pointed out the subnormal temperature of persons suffering from this condition. Persons with fibrositis also had a skin naturally inactive. When sweating was induced the reaction of the sweat, as tested by litmus paper, was strongly acid, in striking contrast to the neutral or faintly alkaline reaction of the sweat of the normal individual. The acidity of the sweat depended upon the presence of large quantities of lactic acid.

Dr. HUBERT HIGGINS gave some description of French investigations on this subject, and also recalled a case of his own in which the hands were very seriously affected, becoming absolutely useless and extremely painful, the real cause being a block obstructing the lymph circulation. Radiation of various kinds proved unavailing, but the condition yielded to a system of massage, alternate pressure and relaxation, and in four or five days the use of the hands began to return.

Dr. PARKES WEBER said that he agreed in general with the views expressed by Sir William Willcox and Dr. Ellis, but with regard to the French radiograph, which the former had shown—indicating shadows in the vertebrae, which it was urged were significant of fibrositis—he found difficulty in accepting the case as one of that condition; there were other forms of calcification besides fibrositis, and he rather questioned the diagnosis.

Dr. EDGECOMBE, from the chair, in summing up the discussion, referred to the cleavage of opinion as to whether any cases of fibrositis were of purely metabolic origin. This must be left an open question. Everybody would agree, however, that in infective cases the commonest organisms were the streptococci, notably of the *viridans* group. The value of vaccine treatment, alone or combined, and the limitations of its use, had been clearly set out. He thought also that it was common ground that in the later and more chronic stages of fibrositis spa treatment had a definite place.

THE FUNDUS OCULI IN GENERAL MEDICINE.

AT a meeting of the Medical Society of London on March 9th, with the President (Dr. E. M. CALLENDER) in the chair, a discussion took place on the fundus oculi in general medicine.

Mr. ERNEST CLARKE said that the advantages of ophthalmoscopy in medicine had been greatly furthered by the advent of the luminous ophthalmoscope, which brought the practice within the range of every medical man. With this instrument a dark room was not indispensable, and the patient could be examined in any position. But it was one thing to see the fundus, and another to interpret what was seen. It was only by constant practice that the observer acquired the capacity for recognizing the abnormal. In this connexion a sequence of picture records was of great value, but until lately such records were not easy to obtain, for an artist had to be specially trained, and, moreover, had to learn to draw to some extent from memory, so as not to worry the patient too much or light up the eyes for too long. In this connexion it was a great advantage that a studio staffed with trained artists should have been opened by Theodore Hamblin, Ltd., where a patient could have a sitting at any time. It was next to impossible to describe small changes in the fundus, but if a series of pictures were taken by the same artist, or by artists trained in the same technique, it was extremely useful. Mr. Clarke proceeded to show a large number of fundus drawings of exceptional and interesting cases. These included one which illustrated the dire results, as shown in the fundus, of acute veronal poisoning. After taking an overdose of veronal, which was followed by unconsciousness for some days, the fundus in both eyes was found to exhibit a considerable amount of papillitis and haemorrhage. It was suspected that there was a cerebral tumour, and that the veronal poisoning was merely a side issue, but after careful treatment the eye condition completely cleared up within a month or two. Another case was one of diabetic retinitis, which cleared up under insulin. He urged in conclusion the importance of forming a permanent library of fundus records, the value of which might be disseminated by means of lantern slides.

Dr. F. PARKES WEBER referred to the ophthalmoscopic appearance in death, a subject on which he had already written a note in the BRITISH MEDICAL JOURNAL, (1924, i, p. 497), following upon an article in the JOURNAL by Ernest Bulmer. While he was house-physician he made a practice of examining the fundus immediately after death. He found the columns of blood in the retinal vessels interrupted by small spaces which could be moved backwards and forwards by pressure on the chest as in artificial respiration. In one case in which a spontaneous respiration took place he had found this ophthalmoscopic phenomenon of segmentation already present. In certain cases, however, after death he failed to find any segmentation, although the cornea had not yet become sufficiently clouded to prevent him from seeing the fundus. The absence of such segmentation, therefore, must not be taken as a sign that death had not occurred.

Dr. JAMES COLLIER affirmed the need for ophthalmoscopic investigation in every case of illness whatsoever. It was one of those superficial examinations which could be carried out in a moment, like feeling the pulse. The examination was easy, the technical details could be learned in a few days, the instruments were good, every fundus was interesting, and the beginner could practise on normal subjects. The fault in the teaching of students was that not enough examination of normal subjects was made. In his own sixteen years' practice as physician to the Royal Eye Hospital the frequency with which general medical diseases had been diagnosed for the first time from the examination of the eyes had been remarkable. In diabetes, renal disease, syphilis, tuberculosis, septic conditions of the accessory cavities, the first symptom might be ocular. Even more important than these positive findings were the negative findings—that the fundus oculi was normal in cases in which recurrent headaches, transient blindness, liability to fits, and other manifestations had suggested the possibility of intracranial lesions.

Sir WILLIAM WILLCOX spoke of eye lesions due to toxaemia. Until comparatively recently one was taught that changes in the fundus oculi were due to diabetes, Bright's disease, or high blood pressure; but one knew from experience that it was extremely common nowadays to find haemorrhages and marked changes in the fundus with no increase in blood pressure, no diabetes, and a normal renal function. It was most important to watch every channel of infection—the teeth, the antra, and the various sinuses. If there was a focus of infection and this was removed it was extraordinary how quickly the eye condition cleared up. Certain drugs, of which atoxyl was perhaps the best example, had an affinity for the retinal tissues, and one common drug which affected the retina in certain people was quinine. He recalled the case of an officer in India during the war who, developing a slight fever, was given 10 gr. of quinine by the R.A.M.C. officer, and immediately became deaf and delirious, whereupon the dose was increased to 15 gr., and he became blind. When he (the speaker) saw the case, recognizing the idiosyncrasy of some people to quinine, he stopped this drug, gave the patient a dose of aspirin, and sent him to hospital, where he recovered his sight completely.

Dr. RAYNER BATTEN emphasized the need for collective drawings by different observers, and showed a very beautiful series of cases illustrating changes taking place at the yellow spot. The PRESIDENT, speaking as a general practitioner, remarked upon the extreme usefulness of an atlas of such records as had been shown that evening.

DIFFERENTIAL DIAGNOSIS OF SOME EXANTHEMATA.

AT a meeting of the Medical Officers of Schools Association on March 6th, Dr. L. R. LEMPRIERE presiding, a discussion took place on the differential diagnosis of scarlet fever, measles, rubella, and allied rashes.

Dr. E. W. GOODALL, in opening, said that one mistake frequently made, especially by younger men, was to suppose

that the diagnosis in these cases could be made on one symptom. The diagnosis had nearly always to be made on a combination of symptoms. Except Koplik's spots in measles, there was no one symptom which could be said to be distinctive. Of all these diseases the most difficult to diagnose was scarlet fever. No single symptom was characteristic of scarlet fever—not the rash, nor the faucial lesions, nor the "strawberry tongue" (for an instance of "strawberry tongue" he would go first to the measles ward), nor the peeling. The diagnosis of scarlet fever could only be made on a combination and sequence of signs and symptoms. With regard to measles, he did not think that the anomalous cases were quite so common as in scarlet fever. The rash, however, might be extremely slight, hardly noticeable at all, and there were some cases in which Koplik's spots were not present or were so transient as to be missed. He believed also that rubella might exist without any rash. With regard to fourth disease, or "para-scarlet," he could not say that he had ever seen this disease in epidemic form. It was said to be a scarlatiniform variety of rubella, but of this he had always been rather sceptical. Speaking of rashes which might lead to a mistaken diagnosis, he said that the rash in rubella in the second stage was very like that of scarlet fever, and so was the rash in the later stage of measles. The rashes of chicken-pox and small-pox, and even occasionally of typhus, might be extremely like scarlet fever. Enema rashes also might be mistaken for scarlet fever or even for measles. The rash of scarlet fever might also be simulated by drug rashes, especially those due to quinine, and another confusing condition was recurrent scarlatiniform erythema. Again, influenza might cause a similar rash to scarlet fever. The most common drug to produce a rash like measles was antitoxic serum. Septic rashes were never scarlatiniform, but frequently morbilliform. He had seen encephalitis twice diagnosed as measles. But all these cases had other symptoms quite incompatible with measles, and it was usually only a matter calling for a little investigation to clear up the diagnosis.

Dr. G. E. FRIEND (Christ's Hospital) gave particulars of a number of epidemics of measles, scarlet fever, rubella, and fourth disease. In fourteen out of twenty-eight epidemics the number of cases in an epidemic was fewer than ten. He described a considerable epidemic in 1916 which began as rubella and went on as scarlet fever. It comprised 204 cases in all, including 11 cases of definite scarlet fever with 1 death, 45 cases of "para-scarlet," or fourth disease, with 1 death, and 148 cases of rubella with no death. He pointed out certain differences in the description of the rash in rubella, as given in the works of Osler, of Allbutt and Rolleston, and in school textbooks, and for his own part declared his belief that there was only one type of rash for any one acute infection. The rose-red papule in rubella was always present at first, though later it tended to become a morbilliform rash. The fact that three types of rash were so commonly described in rubella was good evidence that there was considerable diversity of opinion with regard to that condition. This led him to speak of "para-scarlet," of which condition he had found two varieties, and in both he believed the causal organism to be a haemolytic streptococcus, which had been found in 96 per cent. of the cases swabbed. In 75 per cent. of cases of measles he had found Koplik's spots two days before the appearance of the rash on the body; in 20 per cent. of cases he had found this sign within a shorter interval, though still definitely appearing before the rash; and in the remaining cases the appearance was coincident with the rash. He emphasized the need for basing the diagnosis on a combination of symptoms before a definite opinion was ventured, especially on a first case of scarlet fever.

In a short discussion Dr. GRAHAM FORBES asked whether there could be a definite recurrence of measles, apart from mere relapse, to which Dr. GOODALL replied that he had seen two cases of measles, but only two, with second attacks developing within a few months. Dr. ELWIN NASH said that the rash which was the medical officer's bugbear was that of modern scarlet fever, which was simulated by so many rashes of other kinds. Dr. C. E. SHELLY attributed the appearance of "para" forms of disease to the different degrees of struggle which the pathogenic organism underwent in the effort at survival; and to this Dr. GOODALL replied that he believed organisms had two different functions—one, infectivity pure and simple, and the other, what might be called virulence, exerting itself chiefly in damage to the host, and that one or other of these might in different cases be in the ascendant.

Reviews.

LEPROSY.

IT is a remarkable thing that since the celebrated Norwegian leprologists, Hansen and Looft, published their treatise about 1895, no authoritative and comprehensive work on leprosy has been issued until the recent appearance of the volume with the title *Leprosy*,[1] which we owe to Sir LEONARD ROGERS and Dr. ERNEST MUIR. This is the more noteworthy when we consider that leprosy takes rank with tuberculosis and syphilis as one of the major ills by which humanity is afflicted. It is true that many papers on leprosy have appeared during the last generation; for a short time there was a journal, *Lepra*, exclusively devoted to the study of the disease; and about two years ago Dr. Muir wrote a short book mainly dealing with the newer methods of treatment, which we owe principally to the genius of Sir Leonard Rogers; but that is all. These new methods have changed the entire aspect of the leprosy problem, both from the point of view of the victims, to whom they have brought hope for the first time in history, and from the point of view of public health authorities, especially in the tropics, who can now envisage the prospect of controlling the spread of the disease, of reducing the numbers of the leprous, of even, if they are given the necessary help and encouragement by their Governments, making leprosy as rare in the tropics and other endemic areas as it is now in our own country. It is, therefore, fitting that Sir Leonard Rogers, to whom we owe this wonderful advance, and Dr. Muir, at whose hands the new methods have been put to the proof, should unite in producing the present work, which deals with leprosy in detail from every aspect, and which will, no doubt, long remain the authoritative handbook of the subject.

It is now, of course, thoroughly established that leprosy is a contagious disease due to infection with the specific bacillus discovered by Hansen in 1871; but such is the length and uncertainty of the incubation period that for many years the theory that the disease was always contracted by heredity was strongly supported, and this erroneous hypothesis received unfortunately fresh vigour from the report of the Royal College of Physicians in 1865, which concluded that leprosy was "not contagious or communicable to healthy persons by proximity or contact with the diseased." On the strength of this report the Colonial Secretary issued orders to cease enforcing and to repeal all laws affecting the personal liberty of lepers; the result was an immediate but gradual increase of leprosy in all directions affected. We need not here detail the overwhelming case for the contagiousness of leprosy, but it is interesting to note that even now the exact portal of incubation is not absolutely established, though there is a good deal of evidence that in the majority of cases the infection is due to direct inoculation through the skin or nasal membranes—through the skin in hot climates where clothes are scanty, through the nasal mucosa in colder climates where more clothes are worn—although bed bugs may not be entirely guiltless of the charge of acting as carriers. There is a vast difference among lepers as to their potential danger as sources of infection. Those who are in the first stage, when the bacilli are few and the lesions are not yet ulcerated, and those who are in the third stage, in whom the disease has worn itself out and may be regarded as cured, even although the patient has been reduced to a mutilated caricature of humanity, are comparatively innocuous; it is in the second stage, when the bacilli are

[1] *Leprosy*. By Sir Leonard Rogers, C.I.E., F.R.S., etc., and Ernest Muir, M.D., F.R.C.S.Edin. Bristol: J. Wright and Sons, Ltd.; London: Simpkin, Marshall, Hamilton, Kent, and Co., Ltd. 1925. (Demy 8vo, pp. xii + 301; 32 plates, 56 figures. Paper cover, 10s. 6d.; cloth, 12s. 6d. net.)

numerous and are being shed in large numbers from the skin and in the secretions, that they are most infectious.

A considerable section of the book is occupied with an account of the pathology of the disease and a description of the clinical lesions. This section is, of course, very important to those who will have to deal with leprosy clinically, but what will interest most readers much more is the section on treatment. The treatment of leprosy may be divided into two parts. Leprosy, like tuberculosis, is a disease of poverty and squalor, and lepers, when removed from their unhealthy environment, improve in health without any further aid, just as tuberculous patients improve in a sanatorium. The first necessity, therefore, in the treatment of lepers is the improvement of their hygienic conditions and the removal of any exciting cause —for example, the treatment of any intercurrent disease, such as syphilis, malaria, or kala-azar. But, as a rule, more than this is required, and it is in the specific treatment that the important advances have been made. The story is analogous to the story of the treatment of malaria by quinine and the treatment of dysentery by emetine. In those cases the traditional popular remedies—cinchona bark and ipecacuanha—were studied scientifically, their active principles were isolated, and their utility enhanced. In leprosy much the same thing has been done by Sir Leonard Rogers as he did for amoebic dysentery. Starting from the fact that chaulmoogra oil has long been known as the only real remedy for leprosy, he has striven to overcome the great disadvantages and limitations of the crude drug, and to a large extent has succeeded. He has substituted for the administration of this nauseating substance by the mouth the intramuscular and subcutaneous injection of its derivatives. Moreover, he has examined oils derived from plants of allied species and has discovered amongst them bodies which are found to be even more powerfully antileprous. Chaulmoogra oil is derived from the seeds of a tree, *Taraktogenos kurzii*, but hydnocarpus oil, derived from the allied genus Hydnocarpus, appears to be better, and has the additional advantage that the parent tree is grown in gardens and accessible places all over Southern India, whereas *Taraktogenos* is found only in out-of-the-way places, and it is not easy to get fresh seeds. As to the details of preparation of the various active bodies and the method of administration, the reader must consult the original work; but it may be said that considerable judgement and experience are required to obtain the best results, and this is no doubt one reason why some observers have not obtained such favourable results as others.

The best prognosis seems to be in cases in which the disease is either in the first or third stage; in the second, when the bacilli are present in great numbers all over the body, the reactionary effects of the drugs, which are important, may be so severe as to cause anxiety. On the other hand, the successful treatment of leprosy is almost always associated with reaction. It must be remembered that leprosy, unlike its sister plague tuberculosis, attacks for the most part non-vital organs, and that therefore a degree of reaction, which in a tuberculous lung would entail dangerous consequences, plays a beneficent part in the treatment of leprosy, though it must not be allowed to exceed certain limits. The success which has attended the use of the newer methods of treatment is well illustrated by the series of photographs of patients before and after treatment. But their success has had, and is now having in greater degree, still more important results. Encouraged by the cures which they have heard of or seen lepers are now beginning to come forward voluntarily for treatment instead of concealing themselves for fear of forcible segregation, or at least of the social ostracism which is associated with the disease. Some are being treated in leper colonies and settlements, but many more as outpatients at the hospitals. The result is that in India and elsewhere their numbers are now beginning to diminish, and at last there is hope that the leper problem may be solved. We recommend this book unreservedly, not only to those who are actively interested in dealing with leprosy, to whom indeed it will be indispensable, but also to all who are concerned with the problems of public health, especially in the tropics.

THE EXAMINATION OF WATERS.

THE treatise by Drs. THRESH and BEALE on *The Examination of Waters and Water Supplies* has reached a third edition[2]; since the second edition was published much new and important knowledge has been gained on the subject of water supplies. Very fortunately that knowledge in its practical applications makes both for extension of safe sources of supply and for economy in the methods of treatment of waters to render them suitable for public use. In the past rivers liable to pollution by populous places have been avoided or regarded with suspicion, notwithstanding the very striking case of London and its dependence mainly on the Thames. Now, however, rivers—not, of course, open ditches receiving heavy discharges from large manufacturing towns—can be resorted to without hesitation if proper measures are taken for the protection of the public. These means include two inexpensive alternative processes of chemical purification—by chlorination and by excess of lime—both of them achieving a large measure of bacterial purification, even, in the case of lime, "almost complete sterilization." Though the value of chlorination had been discovered before the war—Lincoln adopted the method in 1905, and Reading in 1910—yet it was the army's resort to it during the war, as well as the Metropolitan Water Board's adoption of it in the war period, that aroused general interest in the new system. And now, as the authors of the work under notice point out, Sir Alexander Houston has recently proved the remarkable value of treatment by excess of lime. All this is set forth by the authors of the work under notice, and, following the chapters on purification of water by storage, and by sand filtration, the two outstanding chemical methods are fully described and discussed. A mere list of the titles of the thirty-three chapters which compose the volume would indicate that no problem of any importance has been left out.

The bacteriology of the subject in relation both to the examination of water and to the interpretation of results is dealt with in the later part of the treatise. Here the authors wisely pass by a great mass of investigation and exposition belonging to the early days, remarking that now "the sum total of the information available, bearing upon the interpretation of results, is comparatively small." At one time "the estimation of the number of organisms present was held to be of the highest importance," and when that idea was exploded the number of different kinds of organisms came into prominence, "but latterly this view has received less support, and now it is deemed absolutely necessary to examine a water for certain definite bacteria, the number of other organisms present being considered of comparatively trifling importance." Organisms of the intestinal type are, of course, those on which attention is specially concentrated—(1) the *Bacillus coli*, (2) the *Bacillus enteritidis sporogenes* of Klein (now often called the *Bacillus welchii*), and (3) streptococci. These are dealt with at length, whilst the cholera spirillum and the *Bacillus pyocyaneus* are discussed briefly. The authors have found recently the last named in two samples of water, to which outbreaks of diarrhoea were attributed.

The volume, which is illustrated by an excellent series of plates of the microscopic flora and fauna of waters, will be of the greatest value to all who have serious administrative responsibilities for the provision and control of water supplies; indeed, in this country it is difficult to see how any educated water specialist can avoid finding a place for it on his shelves.

SEROLOGICAL STUDIES OF HUMAN RED CORPUSCLES.

THE subject of isohaemagglutination, which is of particular interest from the point of view of blood transfusion, has been carefully studied by Dr. SIXTEN HESSER in a monograph entitled *Serological Studies of Human Red Corpuscles*.[3] It forms one of the *Acta Medica Scandinavica*,

[2] *The Examination of Waters and Water Supplies.* By John C. Thresh, D.Sc.Lond., M.D.Vict., D.P.H.Camb., and John F. Beale, M.A.Cantab., M.R.C.S.Eng., L.R.C.P.Lond., D.P.H.Oxon. Third edition. London: J. and A. Churchill. 1925. (Med. 8vo, pp. xiii + 590; 35 plates, 21 figures. 25s. net.)

[3] *Serological Studies of Human Red Corpuscles.* By Sixten Hesser. *Acta Medica Scandinavica*, Supplementum IX. Stockholm: P. A. Norstedt and Söner. 1924. (Med. 8vo, pp. 94.)

which includes articles on internal medicine, published in English, French, or German, according to the decision of the author. In this case the author has selected the English language, with which he has taken comparatively few liberties.

The main conclusions to which Dr. Hesser's researches have led him are that the distribution of the four blood groups among Swedes agrees with the distribution of these groups among other European races, especially among Danes and Norwegians and Scandinavians resident in the United States. The tests were made on patients who showed a negative Wassermann reaction, but he has been able to show that the group distribution is the same in individuals who show a positive reaction to the Wassermann test. He prepared in rabbits immune serums against each of the four groups of human erythrocytes, and found that they were to some extent specific in type, and that by absorption experiments it was possible to obtain specific serums which qualitatively resembled human serums. The absorption experiments have persuaded him to the opinion, suspected by many in this country and America, that the present methods of grouping are not adequate and that in all probability more than four groups exist. A comparison of the properties of serums prepared against human and sheep erythrocytes tended to show that human corpuscles are relatively easily agglutinated and relatively difficult to haemolyse.

Experiments carried out with red blood corpuscles which had been kept for a few days enabled Dr. Hesser to compare the phenomena of isoagglutination and isohaemolysis of human corpuscles, and he believes that isohaemolysins as well as isoagglutinins are physiological constituents of the serum, and that those haemolysins only should be regarded as pathological which haemolyse either corpuscles belonging to the same individual or to the same group. He finds also that serum from different individuals belonging to the same group varies in agglutinating power, and that corpuscles from different individuals belonging to the same group may vary in the ease with which they are agglutinated. Such are the main conclusions of this critical study.

AN *X*-RAY ATLAS.

In the preface to their book entitled *An X-Ray Atlas of the Normal and Abnormal Structures of the Body*,[4] Drs. MCKENDRICK and WHITTAKER state that in it "an attempt has been made to provide a series of radiograms illustrating the normal and abnormal structures of the body, and also the more common injuries and diseases." In the first part of the book thirty-seven pages are allotted to reproductions of seventy-two radiographs of various joints, and numerous diagrams are used to aid in interpretation. While they are interesting in their way, it is rather difficult to see the utility of reproducing groups of radiographs of the normal joints taken in a fixed position with the *x*-ray tube at what is termed (but not described) the "normal focus point," and then moving the tube four inches internally, four inches externally, four inches above, and four inches below. Little attempt is made to explain either the reason for this method of illustration or indeed its usefulness from the diagnostic standpoint, although here and there a suggestion is made that in one or other tube displacement a certain bone or portion of a bone appears to advantage. The radiographs which illustrate this portion of the book are, on the whole, satisfactory.

Following this is a series of some three hundred radiographic illustrations of various conditions, under the headings of (1) injuries and diseases of the limbs; (2) the head, neck, thorax, and spine; and (3) the abdomen. In this part, again, the descriptions of the plates are not quite adequate. It is not enough to reproduce a radiograph of a morbid condition and merely attach to it a statement that it is an example of whatever the authors consider the diagnosis to be; this method of exhibiting *x*-ray appearances seems to us to be of little, if any, educational value. Other criticisms which suggest themselves are that the general arrangement does not appear to follow any consecutive plan, that too many of the radiographs are hardly up to the standard of modern radiography, and that while many common and rare conditions are illustrated and referred to, the omissions are very numerous; further, there are, as we think, some mistakes in description.

The book is very well got up and is printed on most excellent paper. There is an appendix and an index.

[4] *An X-Ray Atlas of the Normal and Abnormal Structures of the Body.* By Archibald McKendrick, F.R.C.S.Ed., D.P.H., and Charles R. Whittaker, F.R.C.S.Ed. Edinburgh: E. and S. Livingstone. 1925. (Demy 4to, pp. xvi + 222; 388 figures, 104 plates. 25s. net.)

DEATH IN THE POT.

The Science and Art of Living,[5] by Dr. LEONARD WILLIAMS, is a popular explanation of the functions of the body and an exposition of the practical lessons to be learnt, especially in relation to digestion and dietetics. Epigrams, alliterations, trenchant tirades, and other extravagances scintillate through its pages. The habits of civilized man, especially his habit of eating cooked food and too much of it, are attacked, and we are told that the major malady of modern civilization is chronic constipation. Some people bow to a magpie, others salute the chimney-sweeper, and Thomas Carlyle took off his hat whenever he met a perfectly healthy-looking man. He might walk the streets of London to-day for a week, says Dr. Williams, without being moved to do so, for he would meet with nothing but muddy complexions, oily skins, and malodorous emanations, proclaiming the hidden cesspool to those who know. In other words, we are all suffering from the major malady. It is, however, the cooking pot that is to blame. Like the sons of the prophets Dr. Williams cries out that there is death in the pot, and tells us that one of the most deadly of inventions is the cooking stove; it destroys the vitamins, and it is the lack of these that is the cause of the all-prevailing constipation. Meats, sugars, and starches should be replaced, to the relief of the cookless housewife, by fresh fruits, raw vegetables, and unsterilized dairy produce. Afternoon tea—a stodgy assemblage of saccharine and starchy horrors—is severely pilloried. Bacteriology, the author says, has led to the habit of sterilizing everything, and the causes of cancer must be sought, not in the laboratory, but in the kitchen. Rickets, adenoids, and appendicitis were unknown before the microbe; the kettle and the crucible came to constitute a creed; and germicides have created diseases which had no existence before their advent. These, in the main, are the kind of messages which Dr. Williams delivers in his book to his "meat eating and sugar sucking," civilized but constipated compatriots. He is less iconoclastic when writing about alcohol. In fact, the lover of wines and spirits will get consolation and encouragement from him, for we are told that virile and vigorous nations have always been alcoholic, and that widespread cessation of drunkenness has always been followed by national degeneracy. The book ends with an injunction to the reader to remember that man's place in the scheme of things is among the animals, not among the angels. There is a certain amount of wise counsel in the book, and some amusement for those who do not take it too seriously.

NOTES ON BOOKS.

Clinical Laboratory Methods, by Dr. R. L. HADEN, gives a full description, supplemented by a large number of excellent illustrations, of all the standard methods in common use in clinical laboratories. The first edition appeared in 1923 (BRITISH MEDICAL JOURNAL, May 12th, 1923, p. 814), and the time since its appearance has been too short to necessitate any considerable changes in the textbook. The author has, however, brought it up to date, and the new edition[6] gives accounts of methods published as recently as last year. The most important change is the adoption of the Kolmer technique for the Wassermann reaction. Other new methods described

[5] *The Science and Art of Living.* By Leonard Williams, M.D. London: Hodder and Stoughton, Ltd. 1924. (Cr. 8vo, pp. 240. 5s. net.)

[6] *Clinical Laboratory Methods.* By R. L. Haden, M.A., M.D. Second edition. London: Henry Kimpton. 1924. (Med. 8vo, pp. 310; 69 figures, 4 plates. 18s. net.)

for the first time are the Kramer and Tisdall method for estimating the calcium content of blood, and the van den Bergh test for bile pigments in the blood. The book is especially noteworthy for the full practical details it gives of the methods described; for example, five pages are devoted to methods of counting red blood corpuscles, and there are descriptions and illustrations of some very useful pieces of apparatus for shaking and cleaning blood pipettes. Details such as these are of great value to the laboratory worker, as they tend to lighten the drudgery of routine work.

The nineteenth edition of *Chavasse's Advice to a Mother*[7] has been revised by Dr. G. T. WRENCH, past assistant master of the Rotunda Hospital, Dublin, who has brought the various subjects up to date. The chapters on infant feeding have been rewritten. As a guide to the management of children and the nursing required in accidents and illnesses the book fully maintains the high standard of previous editions; the style is simple and the advice practical. The reviser's advice to a mother to read through the book and not merely to use it as a reference in emergency is to be commended. Another praiseworthy feature is that no attempt is made to substitute written instructions for the personal supervision of a medical practitioner, as is too often the case in books of this nature.

The *Minutes of the General Medical Council and of its Various Committees*[8] for the year 1924 have been published in a bound volume with eleven appendices. A detailed report is given of the two sessions of the General Medical Council and of the meetings of its various committees, together with those of the English, Scottish, and Irish Branch Councils. The presidential addresses of Sir Donald MacAlister at each of these sessions, which were published in our columns when delivered, are also printed here. Copies of the correspondence dealing with the regulations permitting foreign medical practitioners to practise in Italy are included, and the revised regulations for medical degrees in the University of Bombay are detailed. The *General Index* to the Minutes of the General Medical Council, and of its Executive and Dental Committees, and of its three Branch Councils[8] from 1903 to 1924 has also been published. It relates to Volumes xl to lxi of the *Minutes*. The plan of the previous index has been followed closely, and each subject is indexed fully, the references being arranged chronologically; in many cases special subheadings have been inserted. This *Index* is a valuable book of reference to the proceedings of the General Medical Council and of its committees. Vol. iii of the *Minutes of the Dental Board of the United Kingdom*[8] for 1924, which has also been received, has sixteen appendices containing the reports of various committees, tables of accounts for the year 1923, and rules for the conduct of elections under the Dentists Act, 1921. Warnings are given in one appendix as to covering, advertising to procure patients, and the use of titles and descriptions.

Three further numbers of *Ambulance Competition Tests*[9] have been prepared by Dr. N. C. FLETCHER, dealing respectively with certain errors in treatment, the history of competitions, and preparation of tests. The information is arranged in the form of folded cards so as to be easily portable, and the series will be found of value by those responsible for devising competitions and examinations in ambulance work. A considerable amount of practical detail is set out in such a way as to encourage ingenuity in application. The first three of the series issued in 1923 dealt with the training of competition teams, the conduct of these teams in a competition room, and some common errors in competitions. The series forms a valuable adjunct to ambulance training of all kinds.

In a pamphlet recently published in Zürich[10] F. BRUPBACHER discusses the question of how far a medical practitioner contravenes the law by the practice of abortion, which is a criminal offence in Switzerland and elsewhere. He argues that, as the doctor's duty is to check disease processes and save the life of his patient, and as pregnancy has a harmful influence in cases of latent as well as active tuberculosis, cardiac and renal disease, anaemia and deafness, a pregnant woman who is suffering from any of these ailments should be relieved of her unborn child within three months of the beginning of pregnancy at latest. He produces from a considerably wide literature statistics and other facts in support of his contentions. Another aspect of his case is the need of saving the woman from the practice of abortion by unqualified practitioners and quacks. In his opinion the qualified practitioner should be at liberty under the law to procure abortion whenever by doing so he can benefit the woman, but where eugenic considerations arise he favours sterilization of the mother. The pamphlet appears to be instigated to some extent by the strict laws on the subject in Prussia, where the object, according to Brupbacher, is to produce what he calls "revenge children" without regard to the life of the mother. The mother he considers to be of more importance than the three months old foetus, and the doctor is not carrying out his duty if he does not relieve her of what may exacerbate fatally or otherwise any disease from which she may be suffering.

In *The Quisto-Box*[11] the author has hit upon an ingenious idea for a novel. Professor Quist has succeeded in inventing a pocket instrument enabling its possessor to read the thoughts of anyone with whom he happens to be in conversation. At the moment when he has brought the machine to perfection he dies, and the story traces the efficacy of the box in the hands of the adventurous and attractive young woman who gets hold of it, and subsequently the terrible results that occur when the invention is commercialized and becomes available to all—results which culminate in the destruction of civilization. Incidentally the readers become spectators of a political crisis in a state of post-war creation which is to be understood to bear some relation to Palestine before the mandate was granted. This part of the book, really a digression, contains good descriptive writing. As regards the central idea of the Quisto thought-reading box, who will venture to declare in these days that there may not be "something in it"?

[7] *Chavasse's Advice to a Mother.* Revised by G. T. Wrench, M.D. Nineteenth authorized edition. London: J. and A. Churchill. 1925. (Cr. 8vo, pp. xiv + 345; 28 figures. 2s. 6d. net.)

[8] *Minutes*, 12s.; *Index to Minutes*, 7s. 6d.; *Minutes of the Dental Board*, vol. iii, 5s.

[9] *Ambulance Competition Tests*, Nos. 4, 5, and 6. By N. Corbet Fletcher, M.B., M.R.C.S., etc. London: J. Bale, Sons, and Danielsson, Ltd. 1925. (Price 6d. per folder.)

[10] *Wann ist eine ärztliche Abtreibung rechtswidrig?* By F. Brupbacher. Zürich: A. Bopp and Co. 1924. (Med. 8vo, pp. 96. 3 Swiss francs.)

[11] *The Quisto-Box.* By Horace B. Samuel. London: A. M. Philpot, Ltd. 1925. (Cr. 8vo, pp. 284. 7s. 6d. net.)

PREPARATIONS AND APPLIANCES.

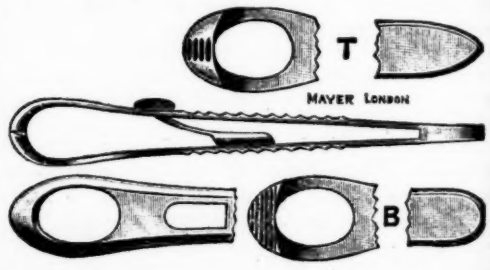
Metallic Bismuth for Intramuscular Injection.

THE use of bismuth as a spirillicide in the treatment of syphilis is engaging a considerable measure of attention. The first compound of bismuth brought to our notice in this connexion was a salt having the chemical structure of tartar emetic, in which the antimony was replaced by bismuth. Our attention has now been directed to a suspension of metallic bismuth supplied for intramuscular injection. It is not a colloidal solution; it is merely a powder of the metal sufficiently fine to pass through a hypodermic needle yet so coarse as to recall the appearance of reduced iron. The metal is suspended in water containing 5 per cent. of glucose. It is prepared by the Boots Drug Company, Ltd. (Nottingham), and is supplied in rubber-capped phials containing five doses each. We have examined the preparation analytically and are satisfied as to its chemical purity. If bismuth should prove to be well tolerated in this form, it is not unreasonable to expect that the coarse suspension may provide for the presence of an inactive excess of the metal, presenting through its surface a continuous but moderated activity towards the blood stream.

An Aseptic Combined Dissecting and Artery Forceps.

Dr. FRANCIS S. PITT-TAYLOR (Blackpool) writes: The forceps here illustrated is of two kinds, each having an externally rounded small end-of-egg-shaped jaw to permit a ligature to slip over the jaw on to the vessel easily, even when the forceps has been applied to a bleeding point at the bottom of a cavity or pocket as in abdominal operations; owing to this jaw shape the forceps when applied stands up on a slant instead of falling down flat, an advantage when the surgeon is working without a colleague in the application of the ligature, which can thus be rapidly and immediately applied to secure the bleeding vessel.

The bite of the serrated edge is of two kinds. One, the wider, B, is of the bull-dog type for larger vessels; its other extremity is rounded. The other, the narrower, T, of the terrier forceps type for smaller vessels, has a pointed opposite end so that when closed either forceps can be distinguished by their distinctive external shape.



The spring has been given a large head to permit of the easy removal of the forceps, whilst its attachment to the inner surface of one blade proximal to the jaw has a heel shape to permit of easy cleaning. The screw head usually visible on the outside of artery forceps has been dispensed with, no sign of its presence remaining in the completed instrument. Either forceps can be used as a dissecting forceps when required by grasping its sides above the position of the spring head, where pressure will not cause the spring to lock the forceps. Messrs. Mayer and Phelps, London, are the makers.

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HEREDITY AND TUBERCULOSIS.

WHETHER an hereditary predisposition to fall a victim to clinically manifest tuberculosis is an etiological factor of importance has long been a vexed question. In recent times Professor Karl Pearson and his collaborators have been the chief exponents of the opinion that such a predisposition is both heritable and of importance. Put briefly, these workers have shown that the incidence of overt tuberculosis upon the ascendants of persons themselves diseased is greater than upon the ancestors of the same degree of kinship of normal persons. Upon certain assumptions it was possible to measure the intensity of the association between the liability to disease of the paired relations, and the resulting numerical value was of the same order of magnitude as that obtaining with respect to characters, such as stature, the statistical treatment of which was easier. It was objected to these researches that the resemblance between parent and child brought out might be interpreted as a measure, not of the force of inheritance, but of the force of familial infection. In rebuttal of this, it was shown that the numerical measure of association between husband and wife, with respect to the having or not having manifest tuberculosis, was much smaller than that connecting parent and child, although the opportunities for infection were as great or greater. To this it was retorted that the age factor in infection was so great that a study of husbands and wives did not really amount to a valid control.

There the matter has stood in this country, the parties to the dispute remaining (as usual) of their original opinions. The greater facilities offered by America for the compilation of some kinds of statistics have been exploited to obtain further evidence. Two recent statistical contributions from America, reaching wholly different conclusions, may be noted. The first is Dr. Raymond Pearl's study of constitution and tuberculosis, originally contributed to a symposium but forming a chapter of his new book *Studies in Human Biology*.[1] The other is a paper by Mr. Godias J. Drolet, entitled "The inheritance factor in tuberculosis," published in the *American Review of Tuberculosis* for November, 1924 (vol. x, p. 280).

Dr. Pearl is engaged in a large-scale investigation which is not yet complete, and is very careful to abstain from positive statements; but an illustration of his method may be given. "Suppose," he asks, "we stopped the first man or woman we chanced to meet on the street and ascertained by appropriate methods whether that person was or was not tuberculous, and at the same time made detailed inquiries as to his or her blood relatives. Should we be justified in laying a wager, if the individual proves to be tuberculous, that a larger percentage of his relatives will be also tuberculous than if he himself were non-tuberculous, and what, if any, odds could we give in such a wager?" To get a first approximation to the answer Dr. Pearl studied 57 persons—38 tuberculous, 19 not tuberculous—the family histories of whom, covering 5,000 blood relatives, had been traced. He tabulated the proportions of the relatives in each generation who were or were not tuberculous. For instance, the parental generation (parents, uncles, aunts) of the non-tuberculous subjects included 763 individuals, of whom 14 (1.8 per cent.) were tuberculous; the parental generation of the tuberculous persons included 472 individuals, of whom 42 (8.9 per cent.) were tuberculous. Taking all generations together, 7 per cent. of the blood relatives of the tuberculous and 1.2 per cent. of the blood relatives of the non-tuberculous were themselves affected. Dr. Pearl then considered the opportunities of infection, dividing his data into (*a*) those known to have been in close contact with another case before developing the disease, (*b*) those not so known. He remarks: "As the amount of tuberculosis in the direct ancestry increases, the amount of tuberculosis in the offspring increases also, but the disturbing fact is that the rate of close contact with open cases increases enormously more rapidly than does the rate of incidence. In short, we find that where one or both parents are actively tuberculous, practically all the offspring who subsequently develop tuberculosis have been in close, intimate contact with another active case, usually, of course, that of the parent or parents. Instantly those who oppose the view that constitution plays any part in the etiology of disease, and particularly of tuberculosis, will assert that this explains the whole matter—that if the children had not been in contact with the open, active cases, they would not have broken down with the disease. Just possibly they may be right. The case, however, is not simple. Our figures equally show that where one or both of the parents were actually tuberculous, *virtually three-fourths of the non-tuberculous offspring have been in just as close contact with active open cases as their brothers and sisters who unfortunately developed the disease.* [Italics in original.] And it must not be supposed that this high contact percentage can be explained by asserting that the non-tuberculous children are all young children who will subsequently all develop the disease. This is not true. Their average age is significantly the same as that of the tuberculous offspring." He strongly emphasizes the need for multiplication of such data, and abstains from drawing conclusions, going no further than to suggest that the data are congruent with the view that familial infection is a real factor but does not wholly explain the increased incidence of tuberculosis in the direct ascending line of the tuberculous.

Dr. Pearl's paper is, we think, a good example of serious statistical field research. We are afraid this cannot be said without qualification of Mr. Drolet's essay. Mr. Drolet suffers from the weakness of the legendary sailor's parrot: he talks too much, as his first sentences sufficiently demonstrate. "The theory that tuberculosis is inheritable dies hard. As the original protagonists of that idea have been driven, because of lack of evidence, from a belief in the actual transmission of the disease from mother to child, they have retreated into the position that, if the disease itself be not inherited, then at least a predisposition to it is transmitted." The position which the "original protagonists" "have retreated into" is the grave, which one of them has occupied for more than a thousand years. But it is to be hoped that Mr. Drolet's friends will persuade him to eschew eloquence, and temporarily abstain from speculating on "Nature's powers of

[1] Baltimore, 1924.

resistance and recovery," so that he may have more time to devote to statistical analysis, since he puts forward some data which may be worth careful study.

Mr. Drolet has, apparently, inquired into the family histories of a large number of persons suffering or not suffering from clinical tuberculosis—5,998 adults and 1,431 children. Of the adults, 3,759 were suffering from tuberculosis, 2,239 were not. In the tuberculous series a parental history of tuberculosis was obtained in 432 instances, or 11.5 per cent. of the cases; in the non-tuberculous series positive histories were obtained in 321 instances, or 14.3 per cent. of the cases. Of the 1,431 children, 244 were tuberculous, 1,187 not tuberculous. The percentages of positive family histories work out as 55.7 for the tuberculous and 60.3 for the non-tuberculous. Mr. Drolet has himself set out the data as percentages of the offspring of tuberculous and non-tuberculous parents, reaching the result that 57 per cent. of the adult offspring of tuberculous and 63 per cent. of the adult offspring of non-tuberculous parents are tuberculous, the corresponding figures for children being 13 per cent. and 22 per cent. As, however, the sampling is of the filial, not of the parental, generation, this method of presentation is, we think, erroneous; knowledge of the parents was obtained through the children; but the results, when correctly stated, are so curious that they deserved fuller analysis. We do not think it has been suggested before that the children of the tuberculous are less likely to develop the clinical disease than the children of the non-tuberculous, or, to use Dr. Pearl's analogy, that we might lay odds that the proportion of tuberculous ascendants in the line of a person suffering from tuberculosis is smaller than in the line of a person not suffering from tuberculosis. Mr. Drolet has, indeed, a theory to account for this. He finds that the prognosis in sanatorium treatment of patients with a history of tuberculosis in the family is rather better than that of those without such a history, and holds that "Nature" works by the immunizing of the descendants of the tuberculous. He is, we think, mistaken in supposing that Professor Pearson "felt the existence of some such possibility"; we do not know, of course, but we suspect that in the passage cited from Professor Pearson that investigator may have been referring to an English writer of some note in his day—the late Charles Darwin. But we certainly think that a fuller analysis of Mr. Drolet's material should be prepared; because statistics look odd is no reason for rejecting them, but a very good reason for scrutinizing them closely. We suspect—basing ourselves on experience of the difficulty of securing accurate family histories of disease—that the specifications of both numbers and state of health in the parental generations are incomplete, and that Mr. Drolet is dealing with much less adequate material than Dr. Pearl. When this important point has been cleared up will be time enough to discuss Mr. Drolet's theory of hereditary immunization.

We have thought it worth while to refer to these papers at some length because there is a fairly obvious tendency in recent literature to ventilate very far-reaching theories of etiology in tuberculosis without producing any evidence which will bear critical evaluation. Some very distinguished investigators, such as Professor Calmette, are not wholly free from reproach in this matter, and unless the tendency is checked knowledge of etiology will not be increased, but the very modest existing standard of medico-statistical accuracy will be lowered. As matters now stand, the caution of Dr. Pearl rather than the speculative ingenuity of Mr. Drolet should be the guide of workers in this field.

INFANTILE PARALYSIS.

THE disease described by Medin and Heine, and long known as infantile paralysis, has become more and more important during the last thirty years. As our knowledge of its incidence and pathology has increased the descriptive inadequacy of its title has become evident. The original name became obviously inappropriate as soon as it was recognized that the disease sometimes affected adults, whereupon the pathological name of anterior poliomyelitis was substituted. Later still—when it was established that in some of the cases observed during epidemics lesions were found in other parts of the central nervous system, and symptoms were recorded which betokened affections of the cerebrum—it became necessary to make its name more comprehensive, and writers such as R. W. Lovett adopted the cumbrous title of anterior polio-myelo-encephalitis. Until 1894 no extensive epidemic of the disease had been accurately recorded, but in that year Caverly reported 132 cases in the course of a few months in the New England State of Vermont. Since then there have been thirteen epidemics of sufficient importance to be tabulated by Jones and Lovett in their recent work on orthopaedic surgery, culminating in the really appalling outbreak of 1916 in the City and State of New York, in which 13,223 persons were attacked, and the death rate was over 25 per cent. These thirteen epidemics comprised over 18,000 cases, with an average death rate of 20.7 per cent. Although complete recovery occurs in perhaps one-fourth of the survivors, the remainder are the victims of lifelong disability in a greater or less degree. The infectivity of the disease has been established beyond doubt, although the micro-organism concerned is a filter-passer which has not been isolated. In this country the disease is notifiable, but as it is almost certainly propagated by unsuspected "carriers" attempts to control it by isolation are not very likely to be successful.

No acceptable explanation has yet been offered of the localization of epidemics of anterior polio-myelo-encephalitis, and no good reason can be assigned for their prevalence in the north-eastern States of the Union. Besides those localities, the Scandinavian peninsula and Central Germany have been sufferers. No epidemic of importance has been recorded in Great Britain, Ireland, or France, yet the frequency of sporadic cases and small epidemics in these countries shows that the conditions in them are not prohibitive, and that we must not count on the continuance of our comparative immunity. Therefore we should set our house in order and be prepared for eventualities. The cripples' organization which started in Shropshire, and which is spreading all over the country, should provide the cadres for mobilization in case of attack by a formidable epidemic. In London the County Council has a scheme on foot for the provision of hospital treatment for cases occurring within its area.

Enough has been said to show the gravity of the problems presented by this disease and to justify Mr. E. W. Hey Groves in choosing its treatment as the subject for his address to the Dorset Medical Society, which appears in another part of this issue. The principles, and the application of them which he so strenuously advocates, are accepted by all orthopaedic surgeons and those physicians and other practitioners whose lot it has been to acquire adequate acquaintance with this disease. For many years orthopaedic surgeons have had the satisfaction of correcting paralytic deformities by various means, including the application of instruments, and of enabling cripples

who may have appeared doomed to hopeless inactivity to stand erect upon their feet and to move about. But it has been seldom that the surgeon saw a case in its early stage, or even before contractures and secondary joint and bone distortions had supervened. Some physicians, notably the late Dr. F. E. Batten, utilized their opportunities of treating cases in their early stages by inculcating the necessity of prevention of deformity by the use of celluloid or other retentive appliances; but until recent years the early treatment has been too often, on the one hand, harmfully meddlesome in its attempts at stimulation, or, on the other hand, negligent of the means of preventing secondary changes in bones and contractures of joints.

The disease, Mr. Hey Groves reminds us, has for convenience been described as consisting of three stages, but, strictly speaking, there are only two—namely, the initial inflammatory stage, and the longer stage during which recovery is taking place in those nerve cells which have not been irretrievably damaged. In the so-called third stage no active morbid process is going on, but the effects of previous active disease remain permanently. Everyone with any experience is agreed that in the first two stages complete physiological rest is imperatively called for. In the less severe cases—in which, for instance, one leg and foot only are obviously affected—the first stage may be so transient as to escape notice by untrained observers. Many parents in the out-patient room have declared that there was no sign of malaise or fever, but that the child "went to bed well and woke up paralysed." Such was the history given in 19 out of a series of 115 cases recorded in a paper read by Mr. Muirhead Little at the Annual Meeting of the British Medical Association at Ipswich in 1900,[1] while in many others no history of constitutional disturbance could be elicited. This experience suggests that although early recognition and treatment is most desirable, there will often be practical difficulties in their attainment. It is therefore all the more necessary that every practitioner should bear in mind the importance of watching carefully any symptoms of malaise occurring in children during the third quarter of the year, in which season the majority of attacks occur, and of prescribing complete rest as a precautionary measure. As soon as the diagnosis of poliomyelitis is made, the measures of restraint specified by Mr. Hey Groves and other writers must be employed. Later on the specialist will probably be called upon to perform such operations as may be necessary to enable the patient to make the best use of so much muscular power as remains to him and to minimize the need of mechanical supports, which, however, can never be entirely dispensed with in severe cases. But neither the general practitioner nor the specialist can do his part of the work unless the necessary clinics and hospitals are provided. Early notification in the active stages of the malady ought to connote the provision of the necessary beds in isolation hospitals or wards of hospitals, while for the crippled stage it is most desirable that the hands of the Central Committee for the Care of Cripples and of the administrative authorities responsible for orthopaedic and cripples' hospitals should be strengthened by the provision of ample funds by the charitable public, in which should be included not only the rich, but also those agencies which enable the working man to take his part in charitable work.

Mr. Hey Groves concludes his address with a slashing attack upon British hospitals in general and the voluntary hospitals in particular. There is, he says, "striking evidence of the failure of the voluntary system." Slashing attacks are a sign of vigour, and they commonly have results—either the destruction of an untenable position or the impalement of the attacker. Mr. Hey Groves's attack is based upon his failure to get what he wants for his patients. He wants special institutions, "open-air hospitals," for those who have passed the acute stage of infantile paralysis, where they can be treated for years. Proof that his demand is justified is to be found in his own words: "Such open-air school hospitals have been springing up all over the country, chiefly as the result of individual philanthropy and enterprise." Strangely enough, he confesses that he is getting the thing he wants, and partly through the very voluntary system he condemns so bluntly. Much of his condemnation is based upon a misconception common to many writers and speakers. There is a hospital system in this country—a patchy mosaic established by statute under various authorities. There is no voluntary "system," though there are many voluntary hospitals—the expression of "individual philanthropy and enterprise" (to use Mr. Hey Groves's words). At diverse times and in various places men and women, moved by the spirit of the Good Samaritan, have given of their skill, time, and substance for their stricken neighbours. The appeal has arisen in many different ways, but it has always been swiftly answered. The fever-stricken, the leper, the outcast, the infirm, the woman in childbed, sick children, and the child paralytic have all made their piteous appeal, and the generosity of the philanthropist and doctor has always and quickly answered it. The fact that now in this country the beds in "State" hospitals vastly outnumber those in "voluntary" hospitals is in itself proof of the success of the voluntary principle; it means that "individual philanthropy and enterprise" has compelled the sluggish mass of the community to follow suit. That Mr. Hey Groves has not all the open-air school hospitals he wants shows chiefly that the local education authorities are not carrying out duties which are properly theirs. It is evident from this that the mass movement has not yet been drawn into the wake of the individual pioneers. But perhaps he is writing of Bristol only, for there are parts of the country where the advance has been much greater.

A phrase in Mr. Hey Groves's paper suggests that he is not familiar with the policy of the British Medical Association for the co-ordination of hospital services. It has just been published in a separate pamphlet,[2] and is worth study. Perchance through that scheme we shall be able to combine the swift response of voluntary or independent enterprise with the mass of communal action, to the general advantage.

THE fifth British Congress of Obstetrics and Gynaecology will be held at the house of the Royal Society of Medicine, 1, Wimpole Street, London, W., from April 22nd to 24th inclusive. The president is Dr. H. Russell Andrews, and the honorary secretaries Mr. Clifford White and Dr. J. D. Barris. The subjects to be treated include the prognosis and treatment of puerperal sepsis, and endometrioma. The members of the Congress will be entertained to lunch by the Section of Obstetrics and Gynaecology of the Royal Society of Medicine; an evening reception and a dinner will also be held. The detailed programme will be issued at the beginning of April.

[1] BRITISH MEDICAL JOURNAL, 1900, vol. ii, p. 580.

[2] *Policy Affecting Hospitals.* British Medical Association, 429 Strand. 1925. Pp. 27. Price 3d.

THE PRESCRIPTION OF MANGANESE.

LITTLE prominence has been given to compounds of manganese in works on materia medica, and no extensive therapeutic use has been made in this country of pharmaceutical products from it. Its compounds fall into two classes: one is represented by salts of the type of manganese sulphate or chloride; the other comprises the group of permanganates, and includes the higher oxides, which have a more pronounced character as vehicles of chemically active oxygen than of medicinal manganese. Manganese sulphate has appeared in a list of purgatives, the dose ranging from 30 to 60 grains; in that character a similarity is evinced to its crystalline isomorph magnesium sulphate. It has also been accounted a tonic when given in doses of 1 to 5 grains; in this respect it bears comparison with ferrous sulphate, with which it is also isomorphous. Manganese hypophosphite is an ingredient of compound syrup of hypophosphites (*B.P.C.*). The expectation that manganese would be rendered more readily absorbable when combined with protein has led to the preparation of a nucleinate; a colloidal solution of the dioxide has also been prepared for medicinal use, and manganese butyrate has been used for intramuscular injection. The uses of potassium permanganate are very well known. It has been generally regarded as having only a local action. Since, however, the view is now established that manganese plays an important part in metabolism, it may not suffice to assume that the beneficial effects of certain modes of treatment by permanganate can be attributed solely to local action; consequences of absorption and assimilation must also receive attention. The interest—some evidence of which is afforded by the letters published elsewhere this week—aroused by Dr. H. W. Nott's paper (published last week, p. 443) on the effects of rectal injection of permanganate accompanied by administration of products of the thyroid gland, will stimulate the desire for a preparation to be given by the mouth which shall produce like effects. It will be helpful, in following this aim, to have a careful appreciation of the conditions of the treatment adopted by Dr. Nott. When permanganate is injected into the rectum three actions can be recognized: first, a vigorous oxidation acting selectively on those matters most susceptible of oxidation with which it comes in contact; secondly, the production of manganese dioxide or even a lower oxide in a condition capable of being absorbed; and thirdly, the formation of caustic alkali. Three grains of potassium permanganate produce a grain of caustic potash—an action of doubtful advantage, for certain mucous surfaces are highly sensitive to caustic alkali, even when it is much diluted. This may perhaps account for the mucous casts of the bowel passed by some of the patients treated by rectal injection. Since the manganese salts belonging to the first mentioned group have no oxidizing power, it is evident that none of them could supply the oxidizing activity of permanganate. Permanganate itself undergoes immediate decomposition when given by the mouth. It is, however, not improbable that both the other activities of permanganate, provisionally regarded as desirable, may be realized in adequate degree by the administration of manganese dioxide by the mouth, especially if it be given in a form that would pass to the bowel with least intermediate change. Manganese dioxide possesses an oxidizing power which is less vigorous that that of permanganate, but it is nevertheless effective on matters susceptible of oxidation. Camescasse, whose successful use of manganese in debilitated children was noted in the leading article published last week (p. 468), prescribed manganese binoxide in cachets or compressed tablets given by the mouth. His formula in English equivalents is manganese dioxide gr. xiv, magnesium carbonate gr. xx, magnesium peroxide gr. v, diastase gr. i, gum, sugar, essences q.s. These quantities yield fourteen doses, dispensed as compressed tablets, each containing a grain of manganese dioxide. English authorities give variously, some 5 to 10 grains, and others 10 to 30 grains, as the permissible dose. Manganese dioxide is not included in the *British Pharmacopoeia* as a medicine; it appears there only as a test reagent. There are two kinds: One is natural; it occurs chiefly in the form of pyrolusite, consisting of steel-grey prismatic crystals, and in the amorphous mineral psilomelane, a black powder. The natural product contains more or less iron oxide, calcium carbonate, and earthy matter. The other kind is obtained by precipitating a solution of manganese by means of ammonia and hydrogen peroxide and repeated washing. Both are described in the *Pharmaceutical Codex*, but only the precipitated powder is there mentioned as suitable for internal administration. The natural article may, however, probably be preferred for the purpose now in view, for the precipitated, being more active, is less likely to reach the bowel unchanged. The natural kind can be rendered pure for medicinal use without alteration of its character; if no other but the precipitated is available, it could be rendered less speedily changeable by the simple process of ignition. Manganese dioxide may be conveniently administered alone in cachets or pills, the dose being varied, according to progress, between the limits above indicated.

SCHOOLS AND EPIDEMICS.

THE Ministry of Health and the Board of Education have jointly issued a revised memorandum on the closure of schools and the exclusion of children from them.[1] The previous issue was in 1909. In an introductory note it is pointed out that hitherto local education authorities have been able to close schools during epidemics, not purely in public health interests, but for reasons of finance, so as to save loss of grant from diminished attendance. That statement amounts to a frank admission of mistaken policy on the part of the central authorities, and it is good that they have seen the wisdom of departing from it. The primary purpose of the school being education, it was wrong to make it possible for local bodies to profit financially by complete school closure rather than exclusion of pupils where the latter measure would be equally efficacious in checking spread of disease. The code now provides that closure shall take place only for medical reasons, and that authorities shall be secured from financial loss when schools are kept open with a greatly diminished attendance. Though in other respects the new memorandum does not differ essentially from that of 1909, attention is directed to certain changes and additions. These relate (1) to the rules as to periods of exclusion necessary for scarlet fever, diphtheria, measles, and mumps; (2) to rules for action in respect of small-pox, German measles, influenza, and epidemic diseases of the central nervous system, which have now increased in prevalence; (3) to action required where teachers are found suffering from pulmonary tuberculosis; and (4) an appendix giving in summary tabular form the incubation and exclusion periods of the commoner infectious diseases. After detailing the powers of local authorities, the memorandum goes on to give guidance for the co-ordination of the work of the school medical service with that of the public health service in respect of school closure, which is to be resorted to as seldom as possible, and the exclusion of children, which is very generally the more advisable course. The sanitary and educational authorities are the same in county boroughs and in some municipal boroughs and urban districts, so these may have the same officer for both purposes, who, it is advised, will generally find it more convenient to deal with closure and

[1] Copies may be obtained from H.M. Stationery Office or through any bookseller, price 4d. net.

exclusion as school medical officer, because, if the Board is satisfied with arrangements made locally, the officer can authorize exclusion directly, without reference to his authority, while, as already insisted, where he can only advise, not authorize, school closure should be rare and exceptional. Where there are two separate officers—one for education, the other for public health—the same considerations apply generally, though the responsibility of the latter officer for dealing with outbreaks of infectious disease is not diminished by the powers of the former, and definite working arrangements should be established on lines laid down in the memorandum. The collection of information about infectious disease among children will depend mainly on the medical organization of the local education authority, which can systematize the work of teachers, school nurses, and attendance officers, as well as get information from parents. Of these agencies that of well trained nurses is the best, by visits both to schools and to homes of absentees. Where the medical officer holds a joint appointment the information should go to him; elsewhere the health officer should be the first recipient, and transmit the information promptly to the school medical officer. Infection is spread much more by persons than by things, so that besides disinfection, cleanliness, and ventilation of school premises, special regard is to be given to children of infected households as possible carriers, and unrecognized cases may be sought for among children who have returned to school after a short absence. Exceptional conditions sometimes justifying school closure include infectious sickness in the teacher's family, the need for disinfection and cleansing after infected children have been in attendance, the rectification of sanitary defects; whilst in rural areas with scattered population the school may give the only likely opportunities for intercourse and so may be properly closed. Sometimes it suffices to close, not a whole school, but a department. An important section of the memorandum deals with rules for action in respect of particular diseases—scarlet fever, diphtheria, measles, and others—but the details are too numerous for synopsis here. Epidemic diseases of the central nervous system are referred to last of all, and though the guidance that present knowledge permits is limited in amount, yet what is said will no doubt be carefully studied. The whole memorandum will now be essential for reference by every health officer and school medical officer in the country. It is, moreover, well worth perusal by education authorities in general. It is signed by Sir George Newman on behalf of the Board of Education and the Minister of Health.

THE BACTERIOLOGY OF CANCER.

SOME pathologists are reverting to the belief, once very generally held, that cancer is due to infection by some extraneous organism. On analogical grounds there is much to be said for this view, and investigations in this direction undoubtedly deserve encouragement. One of its chief exponents in this country is Dr. James Young of Edinburgh, who summed up the grounds on which he has arrived at this opinion in a paper recently published in our columns (January 10th, 1925, p. 60). He described an organism possessing a series of phases—yeast, coccal, bacillary, and amorphous—each of which could grow true to type and live a wholly independent life. He advanced evidence which satisfied him that the parasite lives in symbiosis with the cancer cell in the amorphous phase. The parasite, he said, belonged to familiar bacteria widespread in nature, and expressed the opinion that the ease with which cancer could be produced experimentally in animals by chronic irritation suggested that tissue susceptibility, which he also concluded must exist, implied an immediate risk of infection by a ubiquitous organism. Last year (June 21st, p. 1105) we gave some account of a micro-organism isolated by Dr. T. J. Glover, formerly of Toronto, who claimed to have produced cancer in animals by its inoculation. He claimed also to have produced a serum with which he obtained favourable results. At that time Mr. R. J. Willan, who had then recently visited the United States, and to whom we were indebted for recent information, told us that he had heard of several successful cases, but was of the opinion, in which we concurred, that the claims made by Dr. Glover and his colleague Dr. Scott must be received with caution until a full disclosure was made. Dr. Loudon and Dr. James M. McCormack, physicians to St. Michael's Hospital, Toronto, published in a recent issue of the *Canada Lancet and Practitioner* (January, 1925) some observations they had made regarding the isolation, culture, and identification of the organism described by Dr. Glover. They had visited Dr. Glover's laboratory in New York, and had afterwards carried out a number of independent experiments and had cultivated an organism which they considered to be identical with that described by Glover. They insist upon its pleomorphism and recognize three distinct states of the life-cycle—bacillus, coccus, and spore sac. They also state that in one phase the virus passed through a Berkefeld filter, and that the filtrate yielded positive cultures when incubated at 37° C. for two days. They consider that their organism is identical with Glover's, and Dr. James Young informs us, in a letter recently received, that he considers that both are probably identical with his. He adds an expression of his belief that the cancer parasite can be understood properly only when considered in the light of recent work in bacterial variation, especially that of Löhnis and others. He concludes that a number of parasites may possess filterable, coccal, bacillary, hyphal, and yeast phases. He also calls attention to recent investigations by Blumenthal, Auler, and Meyer of Berlin, who have obtained[1] from different types of human malignant tumours a bacillus which they believe to be akin to the *Bacillus tumefaciens*, the cause of crown-gall in plants (Erwin Smith). By injecting this organism of human origin they have produced in the sunflower tumours indistinguishable from the typical crown-gall growth. Its injection into animals was followed in only two cases by a malignant growth at the site of inoculation. When accompanied by an irritant, however, employed for the purpose of preparing the tissues for the operation of the organism, malignant growths were produced at the site of inoculation in a considerable number of animals, and, in some, the microscopic malignancy was confirmed by the occurrence of metastases and by the fact that the tumours grew after transplantation to other animals of the same species.

[1] *Zeits. f. Krebsforsch.*, xxi, 1924, p. 387.

TESTS OF PHYSICAL EFFICIENCY.

LIEUT.-COLONEL C. B. HEALD, M.D., medical adviser to the Department of Civil Aviation, Air Ministry, has visions of a newer medicine, in which the conventional methods of physical diagnosis will be scrapped. In the address which he delivered lately before the Royal Aeronautical Society he ventured to prophesy that we shall be able, by other than the conventional methods, to estimate with a high degree of scientific accuracy the physical well-being of any individual, to forecast where his barriers against possible disease are weak, and, by taking timely precautions, to strengthen them and so increase the chances of a prolonged and healthy life. It is through the science of aviation that this newer medicine will be realized, for it is presenting new problems in estimating physical efficiency, and teaching new facts regarding the mental and physical well-being of the individual. It is in words such as these that Dr. Heald concluded an address which throughout contained points of interest. He told his audience that the object of the

medical test of a pilot is not so much the detection of disease as the estimation of his degree of well-being. While they enable the medical examiner to diagnose disease in its most preventable form, they also enable him to advise the pilot how he may retain his fitness or regain it if it is deteriorating. Like Oliver Wendell Holmes's one-hoss shay, the pilot breaks down but does not wear out. The medical tests detect the weak points in the machinery before the breakdown occurs. Centralization of the periodical medical examination of pilots, of apparatus and accommodation, and of a system of graphic and other records, is therefore essential, at any rate at present, for accurately comparing changes in physical efficiency. The tests as a whole are designed to assess the basic physical standard of the pilot, to estimate his ability in the air, and to indicate the effect of his ground life on his basic physical condition. Three of the tests—namely, the exercise tolerance test and the blood pressure and vital capacity measurements—are "habit detectors." Together they give useful information as regards the pilot's habits on the ground with reference to exercise and overindulgence in food, drink, and tobacco. Dr. Heald also described three new testing apparatus—the Tucker auditory testing apparatus for recording accurately the power of hearing, the heart recoil apparatus for testing the ability of the heart to withstand the strain of long flights in bad weather, and the Reid control apparatus for assessing the manner in which the delicate co-ordinated physical machinery involved in flight is likely to function. These new tests illustrate how air medicine is endeavouring to improve the technique of medical examinations, and appear, indeed, to have given Dr. Heald his visions of a newer medicine. In the course of his address he made some sound practicable suggestions for establishing confidence between employer, the pilot, the public, the insurance companies, and the Government in connexion with passenger traffic in the air, and also remarked on the difficulties of maintaining a high degree of sanitation in the passenger car, especially in connexion with ventilation and air-sickness. The provision of first-aid boxes in passenger machines and ambulance services in aerodromes was also touched upon.

THE CONTROL OF THE TSETSE FLY.

THOUGH *Glossina palpalis* is best known to the medical profession because it is the chief carrier of sleeping sickness, the cattle tsetses present an even more formidable problem, owing to the vastness of the areas of which they effectually hamper the development. In *Nature* last week Mr. C. F. M. Swynnerton, in charge of tsetse work in Tanganyika Territory, described a scheme of control which had been inaugurated in Tanganyika Territory, and urged that, if the attack on the tsetse is to be made in the most economical and effective way, the main measures must lie in the diversion and regulation of agencies already in existence. The natives must be taught to understand and take part in the solution of their own problems, and existing agencies, such as the annual grass fires, must be harnessed. Tsetse flies are dependent on the presence of "bush." Certain native tribes have adopted a mode of settlement whereby, through the presence of sufficiently closely dotted villages with their chopping for firewood, building, and cultivation, and the browsing of their numerous stock, the bush is kept down and the "fly" excluded. By encouraging this form of settlement everywhere segregation will be extended and, for practical purposes, a control of the fly will be obtained. This concentration of organizable population, Mr. Swynnerton considers, is a necessary preliminary to all measures of a large nature against the tsetse in the bush; that is to say, reclamation must be undertaken. When one of these settlements comes into being its members should be helped to possess themselves of cattle—for only cattle will "anchor" them permanently—and should be encouraged to push back the "fly" in conformity with their requirements. This will be done by an annual clearing of bush. The process has been begun in Shinyanga with the co-operation of the natives, and satisfactory results are already apparent. Clearing must be systematic, otherwise the stumps send out shoots and the position becomes worse than ever; methods of encouraging the removal of stumps and otherwise of killing woody growth are being experimented with. Increase in the population of the settlements should be encouraged by means of propaganda in hygiene, and the extension of the settlements be so guided that they would ultimately coalesce and cut off blocks of fly-infested bush, which, through their smaller size, could be attacked with more hope of success than the huge unbroken "fly-belt." Various methods could be applied to the blocks or smaller fly-belts. Swynnerton favours especially destruction of the thickets, which afford a breeding-place for most species of fly and a refuge for all during the annual grass fires; he would postpone the latter to the end of the dry season, when their lighting should be organized. Last year these organized fires drove the flies before them in great numbers into unburning thickets and patches of country burned previously, and it is suggested that in these places they could be exterminated merely by catching on a great scale. The fire also burned numbers of small breeding thickets, and killed, it appeared, many of the pupae of the flies. Father Cirvegna, a missionary, is believed to have cleared of fly a smaller area in three burnings. As regards game, the view is held that, while here and there the checking of particular movements of game animals may be necessary, no one wishes to exterminate the wonderful African fauna if the tsetse fly can be controlled otherwise, and that the initial work in Tanganyika leads to the very strong hope that it can. Swynnerton holds that knowledge of how to fight the tsetse can now best be advanced by taking a definite large area or entire territory and applying to it all knowledge that has been or will be acquired, by means of reclamation officers working hand in hand with research officers. These men would be trained in the field at the stations first established, and many would pass thence to other parts of Africa in order to make the campaign general. A large fund would be needed for this gradual development of large-scale experimentation in actual control under all African conditions; at the stage now reached that is the right method of research.

CHLORINE TREATMENT OF CERTAIN INFECTIONS.

THE use of chlorine in the treatment of respiratory disease has been studied by Lieut.-Colonel E. B. Vedder and Captain H. P. Sawyer, of the Medical Corps of the United States Army, and a few months ago we gave an account of their first report.[1] In a further report, recently published,[2] they produce a certain amount of additional evidence in support of the therapeutic value of the gas, and discuss at some length the mode in which it may be supposed to act. They state that of 85 cases of coryza treated by them during June, 1924, cure resulted in 60, 22 were improved, and there was no change in 3. In acute bronchitis 6 out of 9 patients were cured and 3 improved, while in acute laryngitis 2 out of 6 patients were cured and 4 improved. The remedy was less successful in chronic bronchitis and whooping-cough. In the former only 2 out of 12 patients were definitely cured, and in the latter 4 out of 21; the number improved in each case was 10. The authors now agree that sterility of the mucous surfaces following the therapeutic use of chlorine cannot be expected, though many bacteria are doubtless killed. They think, therefore, that the clinical improvement can be better explained as

[1] BRITISH MEDICAL JOURNAL, December 27th, 1924, p. 1206.
[2] *Journ. Amer. Med. Assoc.*, January 31st, 1925, p. 361.

follows. The irritant action of chlorine stimulates the lymph flow and cleanses the mucous surfaces, destroying large numbers of organisms, some of which may even be brought up from the depths of glands and crypts. In whooping-cough the beneficial effect is attributed to the loosening of the masses of tenacious mucus, which are then expelled more readily. They state that irritants such as chlorine cause a primary brief capillary constriction, followed by protracted dilatation, which produces hyperaemia of the affected mucous membranes; this aids recovery by improving the blood supply and increasing the number of polymorphonuclear leucocytes. The best therapeutic results were given by a chlorine concentration between 0.009 and 0.015 mg. per litre. This must be maintained for one hour; failures follow any excursions outside these limits. An apparatus has been devised to deliver the proper concentration of chlorine constantly and automatically. The gas generated by the electrolysis of hydrochloric acid is mixed with air in a box and delivered at the rate of 10 to 12 cubic feet a minute. The patient breathes the mixture through a funnel-shaped bag of muslin, applied loosely to the nose and mouth; rebreathing into the bag is avoided. Chlorine rooms have been designed for use in large hospitals, and for the treatment of animals. The authors state definitely that hay fever, asthma, pneumonia, and tuberculosis have not been benefited by this treatment, and are to be regarded as contraindicating its use. A few patients showed unusual susceptibility to the gas, and in them the length of treatment was reduced. An infant of 3 months with whooping-cough made a good recovery after being treated on four separate days, and several patients aged from 75 to 85 with chronic bronchitis obtained considerable benefit. The authors believe that chlorine treatment will prove to have a prophylactic value, and that treatment of early cases of influenza, whooping-cough, or similar infections will result in preventing epidemics from occurring in regiments, schools, and industrial establishments. Benefit is reported also in distemper in dogs, and an epidemic of influenza in horses was cut short. So far, however, no confirmatory evidence of the value of chlorine treatment has been published by other investigators working on a large scale.

THE EDUCATIONAL VALUE OF THE SANITARY SURVEY.

THE second series of the Rockefeller Foundation's publication *Methods and Problems of Medical Education*,[1] issued by its Division of Medical Education under the direction of Dr. Richard M. Pearce, differs considerably from the first series, which was reviewed in our columns (1924, ii, 1014). Instead of dealing, as the opening number did, with several different subjects, this instalment confines its attention to the sanitary survey as an instrument of instruction in medical schools. Dr. Milton J. Rosenau, professor of preventive medicine and hygiene in the Harvard Medical School, Boston, discusses this problem in a comparatively short paper, and the rest of the volume is devoted to the sanitary survey of Rochester, New Hampshire, by Mr. Shields Warren when he was a third year's student in the Harvard Medical School. Professor Rosenau confines his remarks strictly to the use of the sanitary survey as a method of instruction in medical schools, and leaves entirely out of consideration for the time the teaching of preventive medicine, hygiene, and sanitation. To arouse interest is a basis of successful teaching, and the sanitary survey brings interest to a subject which the ordinary medical student regards as having but little bearing on his life's work. It was first used as a method of instruction in the School for Health Officers at Harvard, and met with such signal success that it was introduced later into the course in preventive medicine and hygiene. Every student working for a medical degree is required to make a sanitary survey of some city or town, and submit a report containing (*a*) the collected data, (*b*) the interpretation of the facts, and (*c*) criticisms and recommendations. The student is told to regard the town that he is surveying just as he would a patient, but is not given any special instructions, since it is considered desirable to bring out powers of initiative, observation, and analysis. A small place is more suitable than a large one for such a sanitary service, and Boston is fortunate in having fifty-two towns within fifteen miles of the State House. All the Harvard medical students carry out these surveys, often in the vacations, and apparently the authorities of the surveyed towns sometimes come to recognize their deficiencies, and have employed the surveyors to organize a health service. The surveys are all filed in the Harvard Medical School. Mr. Shields Warren's survey of Rochester, New Hampshire, is reproduced without correction and with its photographs, graphs, and tables.

[1] *Methods and Problems of Medical Education.* Second series. The Sanitary Survey as an Instrument of Instruction in Medical Schools. New York, 1924.

VITAMIN DEFICIENCY.

THE Royal Society of Medicine (as reported in our issue of February 21st, pp. 358-9) recently held a general meeting to consider the non-specific disturbances of health due to vitamin deficiency. The four opening papers were so full and so interesting that there was little or no time to discuss them. But so many present expressed the desire to debate the subject fully that the society is holding a further meeting on Monday, March 23rd, at 5.30 p.m. The subject will again be opened by Dr. Leonard Williams, Colonel Robert McCarrison, Dr. W. Cramer, and Dr. G. M. Findlay, with an epitome of their opening speeches and lantern demonstrations. But the original speeches can be read in full in the March number of the society's *Proceedings*, and those who wish for a summary can obtain galley slips on application at the society's office, 1, Wimpole Street, W.1. The general discussion of these papers will be opened by Dr. William Hunter and Dr. Robert Hutchison.

VENEREAL DISEASE: DEPUTATION TO THE MINISTER OF HEALTH.

LAST week the Minister of Health, who was attended by the Chief Medical Officer, the Secretary of the Department, and other technical advisers, received a joint deputation from the National Council for Combating Venereal Diseases and the Society for the Prevention of Venereal Disease. In the absence of Lord Trevethin, president of the National Council, the deputation was introduced by Sir Auckland Geddes, G.C.M.G., M.D., president of the Society, acting on behalf of both bodies. Sir Auckland Geddes stated the case on the lines agreed by the joint conference of the two societies, and supported the recommendation contained in Clause 14 of the Trevethin report: "That the law should be altered so as to permit properly qualified chemists to sell *ad hoc* disinfectants, provided such disinfectants are sold in a form approved and with instructions for use approved by some competent authority." Sir Auckland Geddes further urged on behalf of the deputation that this competent authority preferably should be the Ministry of Health, otherwise the Medical Research Council or a commission of experts. In reply, Mr. Neville Chamberlain promised to consider carefully the suggestions which had been made, and to communicate the result of his further consideration as soon as possible.

WE regret to announce the death of Dr. John Cleland, F.R.S., Emeritus Professor of Anatomy in the University of Glasgow, in his ninetieth year. We hope to publish a memoir in an early issue.

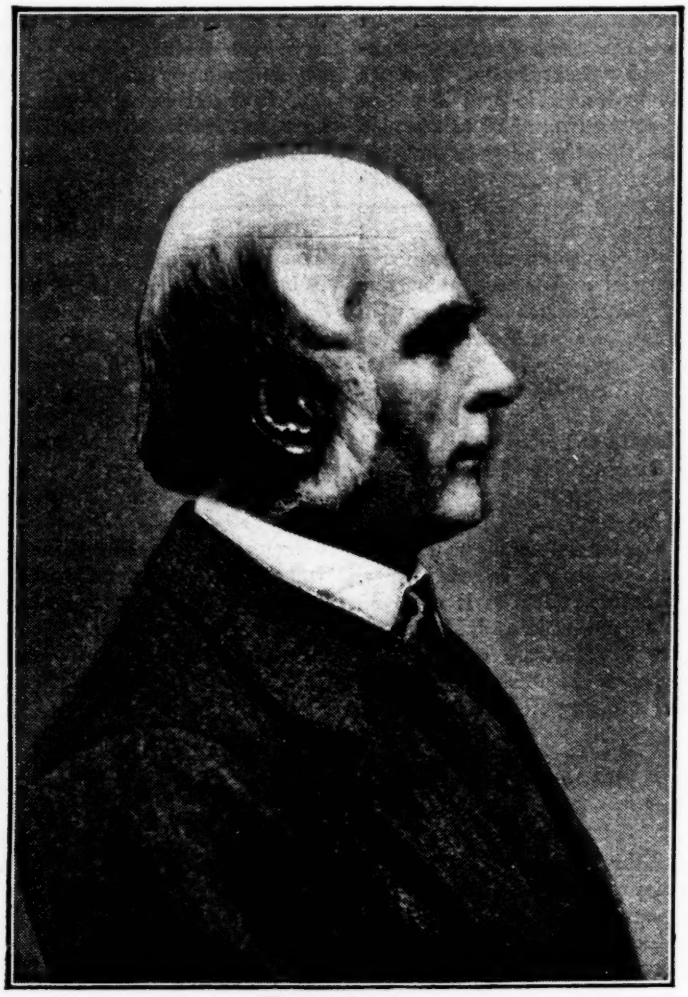
Nova et Vetera.

FRANCIS GALTON.

MORE than sixty years ago a professor in University College, London, David Masson, published the first volume of his *Life of Milton*. Bagehot said that it was very laborious, very learned, and in the main very accurate, but "composed upon a principle that is utterly erroneous." He remarked that: "For ancient heroes the exhaustive method is possible. All that can be known of them is contained in a few short passages of Greek and Latin, and it is quite possible to say whatever can be said about every one of these: the result would not be unreasonably bulky, though it might be dull. But in the case of men who have lived in the thick of the crowded modern world, no such course is admissible; overmuch *may* be said, and we must choose what we will say."

Another professor in University College has just published the second volume of another biography[1]; when completed it may run to as many words as Masson's *Life of Milton*. To many people the events of John Milton's life would seem more interesting, certainly more romantic, than anything Francis Galton experienced; Masson had better "copy" than Professor Pearson. Nobody, however, save perhaps some diligent American compiler of a degree thesis, is likely to read in our time Masson's vast book, but we prophesy that Pearson's *Life of Galton* will be ranked by our descendants not very far behind Boswell's "Johnson" and Trevelyan's "Macaulay."

One reason of the superiority is on the surface: Professor Pearson is a much better literary craftsman than Professor Masson, commanding a style always cogent, and sometimes attaining a high level of eloquence. A profounder difference is that Professor Pearson has been guided by a clear and (we believe) correct principle. His aim has been to write the history of a mind, and he has realized that the working of that mind can only be made intelligible if, beside a study of the actions and reactions of the individual human being and his environment, a clear and correct picture is given of biological factors mingling in his ancestry which predetermined the essence of the individual human spirit. This is why so much of the first volume was devoted to genealogy, and the reader of that volume, recalling the scrappy but tedious pages devoted to genealogy in most full-dress biographies, will agree that exact detail artistically presented is not tedious, but fascinating.



FRANCIS GALTON.
(Reproduced by permission of the proprietors of *Biometrika*.)

The present volume covers the most productive years of Galton's life: a good deal remains to be recorded because Galton's work ended only with his life, and one important part of his statistical work has been reserved for the concluding volume; but this volume leaves him a septuagenarian, and its reader will know fully what manner of man he was. We propose to refer, very briefly, to the detailed contents of the work; but, before doing so, we desire to record some general impressions.

An enumeration of the subjects upon which Galton wrote might well induce the reader to apply to Galton the adjective "versatile." In the sense of having a flexible intelligence, power of inventing or acquiring a new intellectual technique, Galton was indeed versatile. But, in common English usage, the adjective conveys a faint flavour of depreciation, a suggestion of fickleness, of the comment on Reuben, "unstable as water, thou shalt not excel." In this sense there was no versatility in Galton's career; he was from first to last, in the widest sense of the word, an anthropologist, a single-minded student of man. His intellect was, from one point of view, simple. We should surmise that he took very little pleasure in subtle dialectic, that he would have formed as low an opinion of Galen as Sydenham formed. He instinctively approached every problem from the experimental side. No man ever less needed Hunter's admonition to Jenner. Nobody ever had to say to Galton, "Why think, why not try the experiment?" He was always trying the experiment. One may choose three quite typical examples from different periods of his life

In 1860, still actively interested in the problems of travel, he writes: "Unthinking persons talk of the fearful rapidity of a lion's or a tiger's spring. It is not rapid at all; it is a slow movement, as must be evident from the following consideration. No wild animal can leap ten yards, and they all make a high trajectory in their leaps. Now think of the speed of a ball thrown, or rather pitched, with just sufficient force to be caught by a person ten yards off; it is a mere nothing. The catcher can play with it as he likes; he has even time to turn after it, if thrown wide. But the speed of a springing animal is undeniably the same as that of a ball, thrown so as to make a flight of equal length and height in the air. The corollary to all this is that if charged, you must keep cool and watchful, and your chance of escape is far greater than non-sportsmen would imagine." In other words, before waxing rhetorical over the death-dealing leap of a lion, check your eloquence with a tennis ball.

Twelve years later Galton is writing a paper on the efficacy of prayer. If prayer is objectively efficacious, surely we ought to be able to find some evidence of it. Why not find out whether people who pray or are prayed for a good deal live longer than those to the affairs of whom the

[1] *The Life, Letters, and Labours of Francis Galton.* By Karl Pearson. Volume II. Researches of Middle Life. Cambridge: The University Press. 1924. (7½ × 11½, pp. xi + 424; illustrated. 45s. net.)

Almighty's attention is rarely called? Galton promptly goes to a biographical dictionary and works out the mean age at death of eminent clergy, lawyers, and medical men, and finds that for clergy it is 66.42 years, for lawyers 66.51 years, and for doctors 67.07. He also discovers that the nobility are peculiarly subject to insanity, although we regularly pray that they may be endued "with grace, wisdom, and understanding." One need not be told how much offence so uncompromising a believer in the experimental method gave fifty years ago.

In his old age Galton was greatly interested in the experimental testing of the theoretical laws of frequency, and worked much with dice. Such practices are discountenanced in the best intellectual circles, and Mr. Maynard Keynes has spoken with freezing contempt of those who "satisfy a certain idle curiosity" in this way. But experiments on "chance" have guided men of fair ability—Buffon, Laplace, Galton, Weldon, and Pearson—to some interesting results. These examples are trivial, but they are characteristic. Galton's genius was, we think, experimental.

The first chapter in this volume is concerned with transition studies; the most important was, perhaps, meteorology, to which Galton was led by a realization of the value of a knowledge of climate to the traveller and explorer. When Galton resigned from the Meteorological Council in 1901, Sir Richard Strachey wrote: "It is no exaggeration to say that almost every room in the office and all its records give unmistakable evidence of the active share that you have always taken in the direction of the operations of the Office." Many examples of Galton's sagacious ingenuity in devising apparatus are given, and a paper on "Barometric Predictions of Weather," published in 1870, is of special interest in his life story, because it is a first approximation to the principle of statistical correlation, his greatest contribution to the general methodology of science.

In the next chapter Professor Pearson gives an analysis and discerning criticism of Galton's first very important book, *Hereditary Genius*. It would be hard to better this judgement: "*Hereditary Genius* is one of the great books of the world, not so much by what it proves, as by what it suggests. Detailed proof was to come afterwards, step by step. Its publication formed the central epoch of Galton's life, and nearly all his later work may be seen therein to take its origin."

In the next chapter, which includes an interesting correspondence with his cousin Charles Darwin, we see Galton at work as an experimental biologist. There was a divergence of view between Darwin and Galton on the subject of "pangenesis"; subsequent results have shown that Galton saw more of the truth than Darwin. A generation before the rediscovery of Mendel's work Galton fully realized that somatic characters were no measures of gametic possibilities, and that the second generation of hybrids showed more diversity than the first.

At the end of the seventies Galton's anthropological quest led him to psychometry, and he became the first English experimental psychologist. He did not actually found an English school; in modern times our students have rarely believed anything new (to them) to be important until it has been worked on in Germany. But, in fact, Galton was the English pioneer, and perhaps *Inquiries into Human Faculty*, published in 1883, contains more matter familiar, at second or third hand, to most people than any of his other books. In his remarks upon the permanent effects of childish experiences and the "antechamber of consciousness"—"The thronging of the antechamber is, I am convinced, altogether beyond my control; if the ideas do not appear, I cannot create them, nor compel them to come"—are distinct anticipations of a trend of psychological thought and research which Freud and his pupils have made familiar to this generation. One cannot but regret that Galton's statistical method, whether as an instrument of research or critical appraisement, has had, so far, little share in the development of psycho-analysis. That workers in experimental psychology in general display more statistical competence than experimental physiologists—concerned, as the latter often are, with problems equally needing statistical evaluation—is due to Galton's work.

The next chapter describes Galton's photographic work. Composite portraits are associated by everyone with Galton's name, and Professor Pearson has provided a full account, beautifully illustrated, of what Galton did in this field. But composite portraiture was only an item in Galton's researches; his studies of methods of photographic measurement are perhaps of greater importance—he was still working on these in the last year of his life. "In heredity and statistics," writes Professor Pearson, "a younger generation has been found to take up his work; in photography and portraiture his pioneer steps have not yet been trodden into a well-marked track by enthusiastic disciples."

The last chapter is devoted to Galton's statistical work other than his researches based on use of the new *organon*, the calculus of correlation, which is to be examined in the next volume. Professor Pearson was justified in adopting this course because it enables him to trace the development of Galton's ideas and to show how important were the results reached even before Galton arrived at his crowning achievement. A full account of the Anthropometric Laboratory of 1884 is given and of Galton's attempts to secure a more rational system of assigning marks in examinations. Upon the latter point Professor Pearson has an interesting footnote, in the course of which he mentions that, having examined the marking statistics of the London Matriculation Examination, "He was startled to find that the relative personal equation of examiners in history, languages, and literature was very greatly larger than the relative personal equation of examiners in branches of science; and that no systematic method of correcting for this personal equation had been adopted. Thus a candidate's chance of passing depended largely on the examiner to whom his paper was allotted!" Galton was particularly anxious that marks for physical efficiency should be awarded in competitive examinations, "in order to pass those candidates who being a little under par intellectually are far above par bodily; conversely to weed out those other candidates who, not being particularly fit in respect to their brains, are at the same time of decidedly inferior physique."

At the end of the chapter is a series of letters exchanged by Francis Galton and Florence Nightingale on a proposal of the latter to attempt to secure the endowment of a chair of Applied Statistics. In this correspondence Florence Nightingale seemed to have even larger ideas than Galton, and her arguments may perhaps have influenced his own endowment of twenty years later.

It is not possible even to enumerate the topics discussed in the chapter, but the gradual improvement of technique, illustrating how Galton never abandoned a simple numerical method until he had got all there was to be got from its exploitation, is characteristic of the man.

As we said at the beginning, the reader of this volume will have gained a clear mental picture of the man, such a man as the poet may have known:

> "He stood and watched the cobbler at his trade,
> The man who slices lemons into drink,
> The coffee-roaster's brazier and the boys
> That volunteer to help him turn its winch.
> He glanced o'er books on stalls with half an eye,
> And fly-leaf ballads on the vendor's string,
> And broad-edge bold print posters by the wall.
> He took such cognizance of men and things,
> If any beat a horse, you felt he saw;
> If any cursed a woman, he took note;
> Yet stared at nobody,—you stared at him,
> And found, less to your pleasure than surprise,
> He seemed to know you and expect as much.
> So, next time that a neighbour's tongue was 'loosed,
> It marked the shameful and notorious fact,
> We had among us, not so much a spy,
> As a recording chief-inquisitor,
> The town's true master if the town but knew!"

Substitute for "master" in the last line "teacher" and this is a fitting characterization of Francis Galton. If the town but knew, it would become a wiser, saner town.

England and Wales.

WELSH NATIONAL MEDICAL SCHOOL.

THE long controversy over the future status of the Welsh National Medical School, to which we have referred on several previous occasions, has now been advanced a stage further towards settlement. At the last meeting of the council of the University of Wales a communication was read to the effect that the Privy Council had decided against the proposal that the Welsh Medical School should continue to be an integral part of the South Wales and Monmouthshire University College, Cardiff, and in favour of the principle that the Medical School should be a separate entity as a National School of Medicine of the University of Wales. The Privy Council took the view that for the medical school to become a national institution in the sense in which it is desired that it should be, the school ought to be a separate national unit with its own controlling authority, subject only to the broader lines of development laid down by the University of Wales as a whole. It is pointed out by the Privy Council that the school must act for the whole of Wales, and not only be a faculty of the college at Cardiff, if it is to fulfil its great purpose as a national institution. The Privy Council has been engaged for several months in examining the arguments presented by both sides in the controversy, and has reached its decision after taking the fullest possible advice. The arguments against nationalization were admitted to have considerable weight; it had been urged that the separation of one class of students from another was an educational error, and, also, that a decision adverse to the claims of Cardiff might possibly lead to rupture of the federal system of the University of Wales. The financial aspect of the whole question was also considered very carefully. The communication from the Privy Council, whilst ending the matter so far as the Council is concerned, has no final and binding value, since before it can become effective it must receive the acquiescence of the College Council, the Board of Medicine, the University, and the co-operation of the local authorities. The process of financial disentanglement of the Medical School and the College at Cardiff may not be easy, and some of the problems with reference to the allocation of buildings and funds may, possibly, entail some—it is hoped friendly—litigation. The hope is expressed, however, by the Privy Council that the decision will prove eventually to be acceptable to all parties in the controversy.

QUEEN'S HOSPITAL, BIRMINGHAM.

The Queen's Hospital, Birmingham, was opened in 1841, with seventy beds. For many years past its work has been subject to great difficulties owing to the limitation of the buildings. In 1908 a new medical block was erected, but the surgical work is at present being conducted in the original building, which is entirely inadequate for modern treatment. A scheme of extension has therefore been planned, at an estimated cost of about £120,000. It is proposed to build behind the older portion of the hospital a new block to contain six new surgical wards, three large operating theatres with anaesthetic rooms and sterilizing rooms, and a small special *x*-ray department, the whole forming one complete unit. A large and commodious general *x*-ray department is also to be established. The addition of this new block will increase the capacity of the hospital by over a hundred beds. The out-patient department is to be completely remodelled, new open-air wards will be erected, and new departments arranged for diseases of women, ear, nose, and throat diseases, and for electrical and mechanical therapeutics. The pathological department is to be enlarged and remodelled, and adequate accommodation provided for resident surgeons, nurses, and domestic staff. It will not be necessary to purchase any additional land, and no interference with the present hospital work will be caused by the building operations. It is calculated that this extension scheme will enable an additional 1,750 patients to receive expert surgical treatment each year. In our correspondence columns this week we publish a letter from Dr. Kirkby Thomas of Birmingham, treasurer of the Queen's Hospital Past and Present Residents' Association, drawing attention to the old students and residents fund, which has been opened for the endowment of a bed in the hospital.

BIRMINGHAM CHILDREN'S HOSPITAL.

Since the beginning of this year a "sunlight clinic" has been established at the Birmingham Children's Hospital as an extension of the *x*-ray department, an arc lamp having been presented by the late Mr. Albert Keen. Considerable benefits have resulted in the treatment of rickets; the children attend three times a week for a period lasting three months. Gradually increasing exposures to ultra-violet rays are controlled by *x*-ray photographs taken at regular intervals. It is hoped that similar good results will be obtained in the case of marasmic children. The extra rooms needed for the extension of this clinic will be available when the new out-patients' department is opened shortly. It is calculated that £1,000 will equip and maintain the clinic for twelve months, and in that period provide adequate treatment for over 1,200 children.

KIDDERMINSTER INFIRMARY.

On April 5th, 1924 (p. 642), we referred to the proposed extension of the Kidderminster Infirmary and Children's Hospital. The cost of this extension was estimated at £25,000, and at the annual meeting of the governors of the infirmary on February 24th the president, Dr. J. L. Stretton, was able to announce that £20,700 had already been promised. Besides this a sum of over £4,500 had been promised for endowment and upkeep. Dr. Stretton pointed out that the estimated annual increase of expenditure after the completion of the extension would be approximately £1,000, or less than one-seventh of the expenditure of the past year, whereas, comparing the new building of 1872 with the old one of 1870, the change had more than doubled the then annual expenditure. He hoped, therefore, that there would be little difficulty in obtaining the increased support now required. The income for the previous year amounted to £7,582, and the expenditure to £7,754; an additional sum of £1,511 had been received for investment. The number of in-patients treated during the year was 1,048, and there were over 17,000 attendances of out-patients. The Saturday Fund Committee had raised a sum of £3,173, an increase of £343 over the previous year. A strong appeal was made to individual workers, whether employed in factories or elsewhere, as also to domestic servants, to agree to a voluntary levy of 2d. per week. Although there were a large number of these contributors, yet the workers in several firms had not yet associated themselves with the scheme. A contract has now been accepted for building a new children's ward, out-patient department, and laundry, and various alterations and improvements of the present building will be begun very shortly. In accordance with the new rules, which come into operation at the end of March, the infirmary will in future be known as the Kidderminster and District General Hospital.

Scotland.

PROFESSOR OF CLINICAL SURGERY AT EDINBURGH.

As briefly announced last week the King has, on the recommendation of the Secretary for Scotland, appointed Mr. John Fraser, M.D., Ch.M., F.R.C.S.Ed., to be Regius Professor of Clinical Surgery in the University of Edinburgh, in the room of Sir Harold J. Stiles, whose resignation takes effect on March 21st. Dr. Fraser, who graduated M.B. with honours in 1907, is a native of Tain. He became a Fellow of the Royal College of Surgeons of Edinburgh in 1910, and took the degree of M.D. in 1912, being awarded a gold medal for his thesis, and the degree of Ch.M. with honours in 1910. He has been assistant surgeon to the Edinburgh Royal Hospital for Sick Children since 1920. During the war he served with distinction in the Royal Army Medical Corps and gained the Military Cross. He is the author of an important work on *Tuber-*

culosis of the Bones and Joints in Children, published in 1914, and of numerous papers on surgical shock, tumours of the kidney, abdominal emergencies in children, and pneumococcal peritonitis. He has gained a high reputation in the medical profession as a skilled and successful operator, as well as for valuable research on surgical subjects.

LARBERT INSTITUTION ANNUAL REPORT.

The sixty-fourth annual general meeting of the Royal Scottish National Institution, Larbert, was held in the Christian Institute, Glasgow, on February 24th, Mr. William Wilson presiding. Dr. Clarkson, superintendent of the institution, submitted the annual report, in which he said that the lines laid down by the founders had been followed consistently for sixty-four years. The aim was, not to treat mental disease, but to care for children who were crippled in mind. The main business, therefore, was to help these children to realize what personality they possessed. Too many people believed there was something foreign and disagreeable in such children, but each of them was a human being with his own way of looking at things and his little mind working logically in its own manner. During the past year over £200 worth of goods made by the children had been sold. These children remained children all their lives, for it had now come to be recognized that mental defect was not curable. The directors had been attempting to acquire land near the institution for the purpose of establishing a colony where children who, if they returned home, would only be a burden to their relatives, might be cared for during their lifetime. The average number of children maintained within the institution during the past year had been 506.6. The chairman, in moving the adoption of the report, said that a large sum of money had been spent during the past three years in the reconstruction of the buildings; £3,000 remained to be found, but it was expected that the institution would be quite free of debt within a short time. The Marchioness of Ailsa submitted a resolution expressing satisfaction at the increase of interest which was now taken in the more adequate care of mentally defective persons, and commending the institution to the generous support of the public. She said that the necessity was now recognized of taking life-care of the mentally defective in colonies, so that they could continue to render service within the limits of their capacity, although unable to take their places in the outside world in competition with ordinary persons. Reference was also made to the efforts now being made by the Women Citizens' Association to raise funds for the establishment of a colony for mental defectives.

EDINBURGH FOOT CLINIC.

The first annual meeting of the Edinburgh Foot Clinic was held in the City Chambers on March 4th. The chairman, Viscount Novar, in opening the meeting said that the clinic aimed at treating one of the minor and more unromantic afflictions from which people suffered. It should be remembered, however, that the larger proportion of pain from which people suffered came from the teeth and toes rather than from the more important organs, to the curing of which the heroic efforts of medical science were directed. If those suffered who had the best of boots and who could secure the best attention, many who had to put up with what they could get in these matters suffered from a deplorable condition of the feet. This foot clinic was the first dispensary of the kind in Scotland and attached to it was a school of chiropody. In the report submitted by Mr. J. Fleming Robertson, C.A., honorary secretary and treasurer, it was stated that 1,368 patients had attended the clinic, and that the total number of treatments was 3,132, and there was a waiting list of appointments for treatment to the number of 1,311. The clinic was open two nights in the week, and in the school of chiropody connected with it twelve students were at present attending classes. The total ordinary revenue from subscriptions, patients' fees, etc., amounted to £284 2s. 2d., while the expenditure was £324 16s. 10d. The capital required to place the clinic on a proper financial basis amounted to £150, while the sum required for ordinary purposes during the current year was estimated at £200.

TECHNICAL CRITICISM OF STEEL HOUSES.

The technical committee appointed by the National Housing and Town Planning Council to consider the housing question has issued a report criticizing the steel houses which are made by several firms in Glasgow, and of which a description was given in the BRITISH MEDICAL JOURNAL of October 18th, 1924. It is claimed that houses constructed of wooden frames covered with steel plates painted once on the inside when first fixed, and thereafter painted on the outside at frequent intervals, will last for forty years. The committee doubts whether this expectation will be fulfilled, as it thinks that rusting will be set up at the joints and spread to the inside when it is impossible to paint both surfaces and so protect them against oxidation. It criticizes also the use of wood pulp linings for the internal facings of the walls, because of the considerable risk that walls thus constructed may become verminous. It holds that solid partitions are more satisfactory than hollow walls, which harbour vermin and frequently become dilapidated when made of lath and plaster. The Weir type of house, it is thought, will be more readily affected by rapid changes in the temperature than would be houses of thicker or solid walls, because where the walls are not finished with absorptive substances like lime or its derivatives absorption of moisture by articles in the room will be noticeable, and thus mildew may be set up in clothing hung in wardrobes, wire mattresses and other metal articles may rust, and bed linen become damp. The committee has not much criticism to offer with regard to the relative cost between steel-sheeted houses and brick houses except that the latter can be produced, it considered, at a cost of a few pounds less than the former. The use of granular concrete poured between sheets or placed *in situ* is thought to be worthy of experiment, as is also the use of timber in country districts. A large measure of approval was given to methods of steel frame construction by which the roof is placed in position before the walls are built, thus enabling all trades to work continuously without stoppage as a result of bad weather. The committee, however, recognizes that there is a shortage in building materials of brick, stone, tiles, and slates, and recommends that inquiry should be made both by the Government and local authorities to stimulate increased supplies of these materials, especially of tiles and slates. It recommends the establishment of a departmental committee to consider the steps which should be taken to secure proper regional distribution of the houses to be built under the national housing policy.

MONTROSE INFIRMARY IMPROVEMENTS.

At a meeting of subscribers of Montrose Royal Infirmary plans were approved for the provision of a new operating theatre and an extension to provide an additional ward with ten beds at an estimated cost of £2,000. The hospital now contains fifty beds, including seven for the treatment of private patients. It was resolved to use a gift of £500 from Sir James H. Warrack, K.B.E., Edinburgh, for the erection of the new theatre, and to pay for the other buildings out of legacies.

LEITH HOSPITAL ANNUAL REPORT.

The annual report of the Leith Hospital stated that the new cases treated in the wards and the out-patient department together numbered 14,868 during the past year. The ordinary income had been £12,274 and the ordinary expenditure £14,272, while the extraordinary income totalled £11,121 and the extraordinary expenditure £56. The chairman, in moving the adoption of the report, referred to the satisfactory position of the hospital, but pointed out that when the new wing, which it was hoped would be completed by the end of June, was opened and fully equipped the annual expenditure would become much heavier.

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

SUPPLEMENTARY Estimates, unemployment, rent restrictions, and the policy of the Air Ministry have been the chief topics in the House of Commons this week. The House of Lords has read the Therapeutic Substances Bill a second time, and Lord Banbury has reintroduced the Dogs Protection Bill. During the debate in the Commons on unemployment it was intimated that the Government felt it had to deal by some new method with the men who were unemployed at the age of 60 or 65. The method would probably be by insurance, though not under the Unemployment Insurance Act.

Dr. Fremantle has obtained first place on the evening of March 24th, and will move a resolution on housing. He proposes to deal specially with town planning and garden cities. A statement on the Government's housing policy may, however, be made next week. The Rent and Mortgage Interest (Restrictions Continuation) Bill was brought in by Mr. Neville Chamberlain on March 6th, and its second reading commenced on March 11th. It proposes to extend the present system of rent control for two years and a half, with rent tribunals to deal with harsh cases for five years thereafter.

The Warning Notice of the General Medical Council.

On March 5th Mr. A. Greenwood, formerly Parliamentary Secretary of the Ministry of Health, asked the Prime Minister whether his attention had been called to the Warning Notice issued to registered medical practitioners by the General Medical Council, purporting to give a summary of the resolutions and decisions of the Council upon forms of professional misconduct; whether he was aware that in consequence of the issue and circulation of that notice registered medical practitioners were deterred from assisting, by administration of anaesthetics or otherwise, qualified but not registered practitioners of osteopathy, bone-setting, and other new forms of treatment of human ailments; whether he was aware of the feeling of dissatisfaction among the general public, and also among many medical practitioners, with the exercise by the General Medical Council of its functions and powers conferred by the statute of 1858; and whether he was prepared to set up a commission or departmental committee of inquiry into the operation and administration of the various Medical Acts, and the exercise by the General Medical Council of its functions and powers under such Acts, with a view to the introduction of such legislation as might be necessary to ensure the recognition and legal regulation in this country of osteopathy, bone-setting, and other new methods of treatment, and to safeguard both qualified practitioners and the general public. Mr. Austen Chamberlain, replying for the Prime Minister, said he understood that the Warning Notice to which reference was made was adopted virtually in its present form by the General Medical Council in 1897. Subsequent alterations had been merely verbal. He was aware that by the issue of that notice medical practitioners were deterred from assisting unregistered osteopaths and others. While the application of the principles laid down in the notice to particular cases might have given rise to criticism, there was no evidence of any general dissatisfaction among the public or the medical profession, and he saw no necessity for the appointment of any commission or committee such as was suggested. Mr. Greenwood asked whether the Government would receive a deputation of members of Parliament interested in the subject. Mr. Austen Chamberlain suggested that that proposal should be made to the Minister of Health.

Bill to Amend Law as to Coroners.

The Home Secretary, Sir William Joynson-Hicks, has stated, in answer to Mr. Dixey, that he hopes to introduce a bill very shortly to amend the law relating to coroners' inquests.

Boric Acid in Food.

Mr. Hardie, on March 9th, asked the Minister of Health a question with regard to a paragraph in the final report on Preservatives and Colouring Matters in Food (paragraph 59), in which it was stated that it was evident that individuals might consume quite considerable quantities of preservatives in the course of an ordinary day's diet, and that it was easy to imagine a reasonable meal which might contain 20 or even more grains of boric acid besides other preservatives; and whether, in the opinion of the Minister's official adviser, the effects of 20 grains of boric acid were good or bad for the average individual consumer. Sir Kingsley Wood answered that the Minister was aware of the statement referred to. He was advised that the continued consumption of such quantities of boric acid would be likely to have a deleterious effect. Sir Kingsley Wood added that regulations were being drafted to put an end to the use of boric acid in mixtures with sulphurous fumes or otherwise without the knowledge of the Ministry and to prevent the dusting of food in shops with supposed preservatives.

Insulin.

The Public Health (Scotland) Amendment Bill to empower public health authorities in Scotland to provide insulin for sufferers from diabetes, the discussion of which was interrupted as reported last week, was read a second time on March 4th by 272 votes to 115. Mr. W. Adamson, who, when Secretary for Scotland in the last Government, had introduced a similar bill, said that the provision of insulin then involved a weekly expenditure of 4s. or 5s. for each person. Though the price had fallen, its purchase still taxed the resources of certain sections of the people. Under the existing law insulin could be provided free in Scotland to persons insured under the National Insurance Acts, and to those for whom the Poor Law authorities were responsible. Further, expectant mothers, nursing mothers, and children under 5 years of age could be supplied with insulin free, through maternity and welfare schemes; no provision was, however, made for the rest of the community. He objected to the restriction of the bill to insulin, and said that its title would prevent an amendment being moved in Committee to enable drugs to be made available by an order of the Scottish Board of Health in the event of any equally effective remedy being found for some other disease. Promptness was necessary. Dr. Drummond Shiels also objected to the restriction of the bill to insulin. The Government had been influenced by the objection of local authorities, which were made on purely financial grounds. Most members of the House had received a memorandum from the Scottish Branch of the Pharmaceutical Society of Great Britain with regard to the method of supply by local authorities; possibly other drugs might be discovered for which some provision such as the Pharmaceutical Society suggested should be made. Dr. Walter Elliot, Parliamentary Under Secretary of Health for Scotland, said that the local authorities were willing to bear the whole of the small expense the bill involved. He contended that if the scope of the bill were extended it should be by specific legislation. As to the contrast between England and Scotland, the English Public Health Act (1875) only provided for the temporary supply of medicines. Mr. Ramsay MacDonald said that the powers enjoyed in England should not be taken away, but asked that the House should do something to give real power to local authorities to handle these questions as they arose. He would prefer a more summary procedure than that by Order in Council, which had been proposed in last year's bill. Sir Alexander Sprot, Mr. Martin, and Mr. Campbell Stephen also spoke. The bill was referred to the Standing Committee on Scottish Bills.

Ministry of Pensions.

Sir Richard Luce, on March 5th, asked the Minister of Pensions what steps were being taken to make permanent medical appointments under the Ministry; and if British nationality and active service in the late war would be taken into special consideration in making selections for permanent appointments. Colonel Stanley, Parliamentary Secretary of the Ministry of Pensions, said it had been decided to make forty-eight permanent established appointments on the staff of the Ministry and to fill them from the existing full-time temporary medical staff. All members of that staff within the prescribed age limit of eligibility had been notified of the conditions of the appointments, and a selection committee, presided over by the First Civil Service Commissioner, was interviewing a selected number of the candidates. All candidates must satisfy the general rule of the Civil Service as regards British nationality and must have served in the forces in the late war. Mr. Watts asked whether Colonel Stanley was aware that disabled medical men, with several years' war service, who had served the Board for years, were being displaced by young men in many cases engaged in general practice and with no war experience. Colonel Stanley said that point did not arise on Sir Richard Luce's question, which concerned established appointments.

Answering Sir Philip Richardson, on March 10th, the Minister of Pensions said the Central Advisory Committee on Pensions, appointed under the Act of 1921, held two meetings in 1922, three in 1923, none in 1924, and one this year (February 17th). The Ministry's policy had been to lay before the Committee for its advice all proposals of importance or difficulty, and improvements had been made in accordance with its advice, though it was not the practice for the Committee to pass formal resolutions.

The Ministry of Pensions aims to arrange that where a man whose disability does not prevent him from working is undergoing treatment, the treatment shall, so far as possible, be given at evening clinics.

The Ministry of Pensions is asked to consider the suggestion that local Pensions Committees should be authorized to pay the railway fare of anyone who is to assist an appellant suffering from neurasthenia or mental disease to state his case before the Appeal Tribunal.

BILLS.

Dogs Protection Bill.

Lord Banbury introduced the Dogs Protection Bill in the House of Lords on March 5th, explaining that it was to prevent the vivisection of dogs. The measure was read a first time. No date had been fixed for the second reading debate at the time of going to press.

Therapeutic Substances Bill.

The Therapeutic Substances Bill, to provide for the regulation of the manufacture, sale, and importation of vaccines, serums, and other therapeutic substances, was presented in the House of Lords by the Lord Privy Seal (Lord Salisbury) on March 3rd, and was read a first time. A bill with the same title passed through all stages in the House of Lords last year, and reached the House of Commons in June; nothing more was heard of it.

In moving the second reading of the bill, on March 10th, the Marquess of Salisbury said this was a bill which the Lords had passed last session. Its purpose was to prevent the users of therapeutic substances being misled, and it dealt with substances where special provision for standardizing was necessary, because on the standard and strength depended the health of the users. The medical profession could not know what it was prescribing unless it could rely on a standard, and in some cases great mischief could arise from uncertainty, some of the substances being highly poisonous. The bill dealt with serums, vaccines, and special preparations such as salvarsan. It was impossible to decide the amount of arsenic in salvarsan save by biological tests, while pituitary extract, if untested, might vary in the strength of the active principle by as much as the proportion of 1 to 8. The bill proposed licences for all persons preparing such therapeutic substances, and for the places where they were prepared. The conditions would be included in the regulations, which would be laid on the table of the House. The Minister of Health, the Secretary for Scotland, and the Ministry of Home Affairs in Northern Ireland, or their representatives, were to be a committee to draft these regulations. There would also be an advisory committee, including representatives of the three departments, of the research councils, and of other bodies, including the Pharmaceutical Society. There was power to add, by Ministerial order, substances to the schedule of the bill. Imported therapeutic substances were to be tested, with the exception of substances imported for research under licences. The question with which the bill dealt had been before the appropriate body in the League of Nations, which had moved the various Governments to establish standards of therapeutic substances. Many countries had already done this. If we had not our export trade in these substances would suffer.

Viscount Haldane drew attention to Section 3, Subsection 2, of the bill, authorizing special licences for research. He said the schedule contained many things which men of science might need at short notice, and it was not their practice to apply for licences. He feared this subsection might deter useful research, and urged the Government to facilitate the importation of small quantities for research. This view had been put to him by distinguished men engaged in research.

Lord Salisbury said the point put forward by Lord Haldane would be considered in Committee.

The bill was read a second time.

A Consolidating Health Bill.

The text of the Public Health Bill introduced by Mr. Womersley and supported by Mr. George Thorne, Mr. Clynes, Sir Charles Wilson, and others, is now available. It consists for the most part of a collection of clauses which have been commonly allowed in local Acts passed since 1907, brought into more suitable form for general legislation. Compulsory adoption is proposed for the clause providing a penalty for unnecessary contact with the body of a person dying of infectious disease, for the clauses dealing with the medical inspection of inmates of common lodging-houses, and for the closing of such lodging-houses on account of infectious disease within, and for amendments of the law relating to baths and washhouses. The bill applies in general to England and Wales, exclusive of London. Only the provisions relating to baths and washhouses are to apply to London. Permissive powers are proposed as to the provision of drinking fountains, the paving and drainage of courts, reconstruction of drains, abatement of nuisances caused by occupation of tents and vans, the cleansing of verminous articles, houses, and persons, power to establish cold stores, and prohibition of the sale of food by rag and bone dealers. The second reading of this bill is put down for March 20th.

Imperial Institute Bill.

The Imperial Institute Bill was read a second time without debate on March 4th. Under the scheme of reorganization to which the bill is to give effect the Imperial Institute and the Imperial Mineral Resources Bureau will be amalgamated. The bill provides for a parliamentary grant of £9,000 annually for five years after its passing.

Guardianship of Infants Bill.

The Guardianship of Infants Bill, read a second time on March 4th without a division, and sent to Standing Committee A, provides for equality between the father and mother in any case that may come before the courts under the existing law touching the custody or upbringing of the infant, and enjoins the court to regard the welfare of the infant as the first and paramount consideration.

Milk and Dairies Acts.—Answering Mr. Barnes, on March 5th, Sir Kingsley Wood, Parliamentary Secretary of the Ministry of Health, said that it was not proposed to ask Parliament to postpone further the operation of the Milk and Dairies (Consolidation) Act, 1915, which would come into operation on September 1st. The Milk and Dairies (Amendment) Act, 1922, would continue in force. Sir John Gilmour, Secretary for Scotland, announced that the Milk and Dairies (Scotland) Act, 1914, would also come into operation on September 1st.

Medical Women's Pay.—Miss Wilkinson, on March 5th, asked the Chancellor of the Exchequer whether he was aware that the Government was the only authority making a difference between the pay of medical men and women, and whether he would consider the matter. Mr. Churchill replied that the matter had been considered by the Labour Government, and he had not found it possible to decide to reverse their decision. Any request for an opportunity to discuss the matter should be addressed to the Prime Minister.

Imported Drugs.—Mr. Crawfurd, on March 10th, asked the President of the Board of Trade if phenacetin, phenagene, and many other chemicals scheduled as liable to duty in Part I of the Safeguarding of Industries Act, 1921, were still not manufactured in this country; and if he would at once order the removal of such articles from the dutiable list to lessen the cost to hospitals and similar institutions where they were so largely used. Sir Philip Cunliffe-Lister replied that "phenagene" did not appear in the list of goods dutiable under Part I of the Safeguarding of Industries Act. As regards phenacetin, its manufacture in this country was at present suspended. The number of such listed products produced in the United Kingdom was steadily increasing, and he was not prepared to introduce legislation to remove articles from the dutiable list. In reply to another question it was stated that of some 2,000 fine chemicals listed in Part I of the Safeguarding of Industries Act the manufacture of 1,000 had been undertaken by a British firm since the passage of the Act.

Influenza Research.—Sir Alfred Butt asked the Minister of Health whether his department was initiating or assisting any research for the purpose of discovering an antitoxin for influenza which could be generally employed. Sir Kingsley Wood, Parliamentary Secretary of the Ministry, replied that research was being vigorously prosecuted under the auspices of the Medical Research Council as well as by pathologists in the Ministry of Health, but present knowledge gave no immediate prospect of a discovery of an antitoxin suitable for general use in cases of influenza.

Mental Hospitals.—At the close of the sitting on March 10th Mr. Taylor called attention to the conditions in mental hospitals, and moved that reform of these conditions was of urgent importance. Mr. R. Richardson, in seconding, asserted that there were thousands in these hospitals who should not be there. Sir Kingsley Wood, replying for the Ministry of Health, said the Government must await the report of the Royal Commission on the Lunacy Laws now sitting before expressing an opinion on the general questions raised. He expected the Commission to report next year, and promised prompt consideration. In regard to the conditions of employees in mental hospitals, the Board of Control was anxious that many of the reforms recommended should be adopted by local authorities. It had no power to enforce such recommendations, but would bring them before the local authorities. The Ministry of Health thought that the conditions of employment needed improvement and would see whether the grant could not be increased. He offered to confer with the mover of the motion to see what could be done in the areas where the need was most pressing. The motion was then withdrawn.

Miner's Silicosis.—Mr. Geoffrey Peto, on March 10th, asked the Secretary for Mines for how long the question of silicosis among coal-miners had been under investigation by the Health Advisory Committee; and when it was likely to reach a decision as to its scheduling under the Workmen's Compensation Act. Colonel Lane-Fox replied that the question had been under consideration for two years. The evidence received so far was insufficient to justify scheduling, and the Committee would welcome further evidence.

Opium in India.—On March 9th Mr. Buchanan asked Earl Winterton, Under Secretary of State for India, whether the Government of India was aware that the use in India of opium was supported by British officials as a well established and, on the whole, not an injurious habit; and what steps he proposed to ensure that the use of this drug should be discontinued. Earl Winterton replied that in the opinion of the Government of India, based on the findings of the Royal Commission which in 1895 investigated the consumption of opium in India, was that centuries of inherited experience had taught the people of India discretion in the use of opium, which for the most part was without injurious consequences. The distribution of opium was strictly controlled in accordance with the provisions of the Hague Convention, 1912, and the Secretary of State for India did not propose to interfere with the discretion of the Government of India and of the Indian Provincial Governments in the exercise of that control.

Illness Alleged to be Due to Vaccination.—Mr. Cecil Wilson asked a question with regard to a man who had enlisted in December,

1917, in good health; he had not previously been vaccinated. He was vaccinated in January, 1918; his health had afterwards broken down and he suffered from extensive tuberculosis of the lung. This breakdown was attributed to the vaccination, and it was asked that the refusal to grant a pension might be reconsidered. Colonel Stanley replied that the man made no claim to pension until nearly five years after demobilization, when, after careful consideration of all the evidence, the Ministry of Pensions was unable to regard his condition as connected with service. He appealed to the Independent Appeal Tribunal and submitted full statements of his health during service and subsequently, but the Tribunal confirmed the Ministry's decision. The Ministry saw no ground for granting a pension.

Spirits in Sickness.—Lord Apsley, on March 5th, asked the Home Secretary to consider the relaxation of the regulations which prevent the public from purchasing, in cases of sickness, a bottle of wine or spirits before 10.30 a.m. or between 2.30 and 6 p.m. The Home Secretary said he had no power to alter the regulations, nor was he aware of any such inconvenience as would justify amendment of the law.

Notes in Brief.

The Minister of Health is aware that some complaints have been made of delay in payment of benefit to insured persons who fell sick, but it was not thought necessary to set up a departmental committee on the subject.

During the last twenty years forty persons who were on conviction less than 21 years of age have been sentenced to death in England and Wales, and fourteen have been hanged.

Permits to undertake work in this country were issued during 1924, under the Aliens Order, 1920, to seventeen nurses, mainly probationers, and were refused to eight.

A bill to provide for the registration of funeral undertakers and a bill for the regulation of movable dwellings were introduced into the House of Commons on March 5th—the first by Mr. Groves and the second by Major Wheler.

The new Central Advisory Committee of the Ministry of Pensions met on February 17th.

Factory inspectors have been notified that any premises where multigraphing by means of machines set with types is carried on regularly and extensively are included in the Factory Acts.

The Ministry of Health is pressing for improvement in the sleeping accommodation for women vagrants at certain casual wards.

The Royal Commission on Local Government cannot yet indicate when its report will be presented.

The number of old age pensioners rose from 916,771 on March 31st, 1924, to 997,160 on December 31st.

The Minister of Labour is considering the report of an investigation into working conditions in the clinical thermometer industry.

Answering Mr. S. Mitchell, on March 5th, Colonel Ashley, Minister of Transport, said he was disposed to agree with the Departmental Committee on the Regulation of Road Vehicles that it was impracticable to compel all applicants who desired licences to drive motor vehicles to produce medical certificates of mental and physical fitness before the licence was granted.

During 1923 and 1924 the number of cattle slaughtered in connexion with outbreaks of foot-and-mouth disease was 111,993 and of sheep 54,532. The compensation paid totalled £3,326,942. The Ministry of Agriculture hopes in the near future to test the Shaw remedy for foot-and-mouth disease.

Three cases of rabies occurred in dogs in Great Britain during the last three years. All were imported dogs still in quarantine. The restrictions will not be relaxed.

The Home Secretary does not think the danger from toy pistols is sufficient to justify legislation extending to them the provisions of the Firearms Act.

It is not thought desirable to allow good conduct prisoners to smoke during exercise, but the privilege of dining together is being extended.

Under the Housing Acts (1923 and 1924) 51,207 houses have been authorized in rural areas, and 15,818 have been completed.

The Parliamentary Indian Committee was informed on March 9th that the Government proposed to introduce legislation giving effect to the main recommendations of the Lee Commission on the Indian Civil Services. Whether the recommendations in regard to the Indian Medical Service would be accepted was not specifically stated.

The Medical Committee of the House of Commons met at the House of Commons on March 9th and appointed Sir Richard Luce to act as liaison officer between the Committee and the British Medical Association, particularly in regard to the Factories Bill and any action on birth control. The Committee decided further to consider the Births and Deaths Registration Bill prepared by Dr. Fremantle. It decided to take no action on a communication received with regard to a recent removal from the *Medical Register*.

Members who are interested in the claims of certain classes of unregistered practitioners, to which attention was drawn in the House last week, will probably meet about March 31st. No deputation to the Minister of Health has yet been arranged.

Correspondence.

THE THYROID AND MANGANESE TREATMENT IN VARIOUS DISEASES.

SIR,—I am very much interested in the article on the above subject in your issue of March 7th (p. 443). For the last ten years or more I have been using potassium permanganate for various diseases, but mostly for "asylum dysentery." I used it, however, in a somewhat different way, as a solution of 1 grain to 20 ounces of water; of this the patient swallows doses of from 1/2 to 1 or 2 ounces several times a day. In urgent cases I use the same solution for an intramuscular injection, giving as much as will fill an ordinary 20-minim hypodermic syringe, which, of course, is more than 20 minims. This I inject deeply into the buttock. I have cases that were apparently almost moribund recover after this treatment. Some not only recovered from the dysentery, but from their insanity as well—in one case of melancholia after six years' illness. By a strange coincidence, this patient has just called to see me. She looks the picture of health and has been well ever since—that is, for four years.

I have also used collosol manganese for these injections. I have been rather diffident about *post* and *propter hoc*, but have told my medical friends. I see the names of two mental hospital physicians in Dr. Nott's list. Perhaps they will feel inclined, as I do, to adopt this treatment, so ably heralded by Dr. Nott, in cases of the toxic psychoses.—I am, etc.,

W. J. A. ERSKINE, M.D.,
Medical Superintendent, Whitecroft Mental Hospital, Isle of Wight.

March 9th.

SIR,—In reference to Dr. Herbert W. Nott's interesting and suggestive article, it might interest your readers, and recall happy memories to many students of the late Professor Stephenson of Aberdeen University, if I write shortly upon Stephenson's teaching of over twenty years ago of the use of potassium permanganate in what he called the "blae type" of woman. I have used his treatment during my whole career as a general practitioner, and have never found it to fail. I use it in the form of pulverettes containing 2 grains each, and give one pulverette three times a day after food, the dose, and type of case, strictly following Stephenson's directions. The "blae type" is typified by a woman of between 18 and 25 years of age who comes to one complaining—

1. That she is readily tired. She starts out upon her day's work in quite good form and keen, but this feeling soon passes away, and before she has well started her work she is done up both mentally and physically.
2. She is not anaemic, but florid with "blae" lips, hands, and feet. If pressure is applied to her hands or feet, and released, the blood returns to the part very slowly.
3. She has a ready tendency to chilblains, and a puffiness about the ankles.
4. There is a sense of weight and soreness over the sacrum, especially when tired, and just before her periods.
5. The periods are irregular either as to periodicity or quantity or quality of discharge. Sometimes there is definite menorrhagia, and there is always pain just before the period and the first day of the period, but relieved by the period. Such patients are frequently quite unable to go about their ordinary duties when menstruating, or, if they do set out to work, have frequently to give in.
6. A very characteristic feature, when present, but not always present, is an intense, often occipital, headache upon the day preceding the expected period; the headache, as the condition progresses, tends to come on every second week, and ultimately weekly.

Such patients find life a heavy burden, are terribly handicapped in struggling to fulfil their daily duties, and I do not know any condition where relief evokes greater gratitude. I usually order a three months' course, but sometimes, as Stephenson warned us, the course has to be extended for a longer period. In certain cases there is a tendency to relapse, but a resumption of treatment rapidly brings about relief.—I am, etc.,

ENEAS K. MACKENZIE.

Tain, March 7th.

TUBERCULOSIS IN ASSAM.

SIR,—In a report of a paper read by Sir Leonard Rogers before the Section of Tropical Diseases and Parasitology of the Royal Society of Medicine on January 8th (BRITISH MEDICAL JOURNAL, January 17th, pp. 116-17), I was interested to read a statement based on gaol statistics that Assam, with the highest rainfall in India, had almost the lowest tuberculosis rate, and this was explained by the fact that, notwithstanding the heavy rainfall, the general configuration of the land protected the province from rain-bearing monsoon currents.

My own experience in the Cachar district of Assam is that rain-bearing winds and tuberculosis, especially pulmonary, are extremely prevalent. During the past five years pulmonary tuberculosis where tubercle bacilli were definitely found in the sputum represents 10 per cent. of the total mortality in my district.

As there are about twenty thousand coolies under my care in an area of about twenty miles, and as it is impossible to give individual attention to each patient, it is probable that tubercle bacilli were responsible for many more deaths than those recorded as due to this cause. Considering the high mortality from acute diseases, such as pneumonia, bacillary dysentery, cholera, malaria, etc., it will be seen that the relative percentage of deaths from pulmonary tuberculosis is extremely high. Tuberculosis is by no means confined to tea-garden coolies, for the local tribes—Kukis, Lushais, Nagas, Manipuris, and Cacharis—frequently come to me suffering from phthisis or other tuberculous infections.

The type of pulmonary tuberculosis in Cachar is usually a diffuse, rapid, caseating, necrotic type, with rarely haemoptysis, as was described by Arthur Powell in Bombay. With the exception of lupus, I have seen practically all types of tuberculosis in Assam which one sees in Great Britain. At present I have a boy 9 years of age under my care with renal tuberculosis where the diagnosis was confirmed by guinea-pig inoculation. Lupus is stated by some to occur only in those with a certain degree of resistance to the tubercle bacillus; but the impression one gathers in the tropics is that the action of sunlight on our bare-skinned or badly clad races is inimical to cutaneous tuberculosis.—I am, etc.,

G. C. RAMSAY.

Labac Central Hospital, Dewan P.O., Cachar, Assam, Feb. 14th.

INFECTIVITY OF SMALL-POX IN THE INCUBATION STAGE.

SIR,—I quite agree with Dr. E. H. Snell (BRITISH MEDICAL JOURNAL, February 28th, p. 426) that the statement in Dr. Rolleston's valuable book on *Acute Infectious Diseases* (p. 326), that "the small-pox patient is infectious in all stages of the disease, even in the incubation period before any symptoms have appeared," is contrary to general experience. If Dr. Rolleston had qualified the statement by saying that small-pox might occasionally be infectious during any stage, but that it is not usually infectious until the rash appears, little objection could be taken; but in its present unqualified and dogmatic form it is certainly misleading and erroneous.

The following case, which has just occurred in my own experience, is, I think, typical of the experience of most medical officers of health, which justifies them in basing their preventive measures on the assumption that small-pox, with rare exceptions, is not infectious until the rash appears.

A married woman was taken ill with small-pox on February 15th; the eruption appeared on the 19th; she was removed to hospital on the 27th. Her husband, unvaccinated, shared the same bed at night throughout. He did not begin to sicken with the disease until March 4th—that is, the fourteenth day after the appearance of his wife's eruption. His eruption began to appear on March 8th.

Whilst one instance, of course, proves nothing, this case seems worth quoting, because the degree of contact must have been very close all through both the incubation and the prodromal periods, yet apparently he did not contract the disease until the eruption appeared.

I agree also with Dr. Snell that it is just this non-infectiousness of small-pox before the eruption appears which makes the prevention of small-pox comparatively easy (even in the absence of general vaccination), provided only that cases are promptly recognized and reported after the eruption appears.—I am, etc.,

Leicester, March 9th. C. KILLICK MILLARD.

ISOLATION HOSPITALS FOR SCARLET FEVER.

SIR,—I note that you do not wish this correspondence to drift into a discussion of the value of inunction in scarlet fever. It is, therefore, sufficient for me to point out that the Milne method of treatment has been discarded in the home of its birth, and an investigation into the results of it under Dr. Milne's régime and since was published by Dr. Gushue-Taylor, the medical officer who succeeded Dr. Milne, in the *Lancet* in 1923.

Dr. Robertson, the medical officer of health for Edinburgh, employs this objectionable treatment of swabbing the child's throat every two hours for twenty-four hours, not because inunction and swabbing is claimed by him to be "infallible treatment," but he has simply adopted it as "a reassuring influence of parental fears" in order to induce parents to retain their children at home rather than send them to an isolation hospital. When he tells us that in Leith a vast proportion of the cases treated on this system were in working men's dwellings, one can understand how little efficacious such treatment could be under such conditions. His results could as easily have been obtained without it. The policy adopted by Dr. Robertson, which saves cost to the rates, may appeal to the canny Scotsman; it makes little appeal to most other medical officers of health. Dr. Pringle, the medical officer of health for Ipswich, has summarized the position very ably when he says, "I believe that the local isolation hospital has contributed in no small degree to the low degree of prevalence of infectious disease at the present time. . . . In so far as the treatment of cases admitted is concerned, there is no question at all but that the hospital has been the means of restoring the health of large numbers of children and adults who could not possibly have received either adequate medical supervision or nursing management in their own homes."

If Dr. Robertson had confined his remarks to cases which could receive adequate nursing and medical attention in their own homes, and had discarded the Milne system, we should have had little dispute with him; but when he quotes with pride the percentage of cases treated at home at Leith, "the vast proportion of which were in working men's dwellings," I am inclined to think he is advocating economy at the expense of the health of the child.—I am, etc.,

A. H. G. BURTON, Medical Officer of Health.

Ilford, Essex, March 4th.

SIR,—Dr. H. Cameron Kidd's gentle protest does not persuade me that I missed the point of his letter. He ("purposely," he confesses) "said nothing on . . . the failings of isolation hospitals in respect to scarlet fever." But he asked that more money be spent on these institutions; and he expressed a conviction that "some of the complications" of scarlet fever "might" be avoided by such an outlay.

Now isolation hospitals cost a lot. The community is hard up at present. More expense must be justified by either proofs of valuable work done or a definite promise of increased efficiency. I regretfully suggest (*a*) that Dr. Kidd's conviction does not constitute such a promise, and (*b*) that his ingenuous omission of the question of the efficiency of hospital isolation does constitute a confession that these institutions are not exactly proud of their record. Thus it seems opportune and pertinent to interpose. The more so as Dr. Kidd now says, "We have committed our generation to hospital isolation, and the important thing is to make the best of it." Surely these are dangerous words. Efficiency is the test. And if we have committed our generation, knowingly, to anything less than first-rate, "the important thing" (*pace* Dr. Kidd) is to scrap it relentlessly.

You, Mr. Editor, deprecate "a discussion of the value of inunction in scarlet fever"; but, unless the exponents of serum treatment or vaccine treatment can offer some definite hope, inunction should be seriously investigated; and I am afraid that Dr. Kidd rather invites that ordeal by his reference to "old annual reports, especially twenty to twenty-five years ago, where the whole question was discussed." If he speaks by the book, a generation has now arisen which knows not the Milne method. Dr. Robertson's circular demonstrates anew that the thing can accomplish notable results in unpromising areas.—I am, etc.,

Belfast, March 2nd. ROBERT WATSON.

QUEEN'S HOSPITAL, BIRMINGHAM.

Old Students and Residents Fund.

SIR,—May I be allowed to use your columns for the purpose of bringing to the notice of the many past residents and students of the Queen's Hospital, Birmingham, the fact that an appeal is being made for funds to extend and reorganize the hospital? The need is great, and the appeal is meeting with encouraging support from the general public.

A strong desire has been expressed by many past students and residents of the hospital to associate themselves in some corporate manner with the appeal, and it has been suggested that a popular way of doing so would be to undertake to raise a sufficient sum of money to endow a bed in the new surgical block. The sum required is £1,250, and subscribers will have their names recorded over the bed, or in some other suitable position.

It is impossible to reach directly all past residents and students, who are widely scattered throughout the world; but any who may read this letter and would wish to record in permanent manner their affection for and appreciation of their *alma mater* by contributing to the "Old Students and Residents Fund" for the endowment of a bed are invited to send their donations to me, as treasurer of the Queen's Hospital Past and Present Residents' Association, at the Queen's Hospital, Birmingham.—I am, etc.,

Birmingham, March 8th. L. KIRKBY THOMAS.

TREATMENT OF PERFORATED GASTRIC AND DUODENAL ULCERS.

SIR,—I have read with interest the letter on the treatment of perforated gastric and duodenal ulcers by Mr. Percival Mills (January 24th), but would ask if it is correct from a statistical standpoint to express results in percentage terms unless generalization is made on 100 cases or multiples of 100.

In my opinion it is incorrect, and I should like to have the opinion of statisticians such as Professor Karl Pearson and Dr. Major Greenwood on this.

If the 40 cases recorded were analysed in the manner used in the article quoted, in, say, batches of 10 taken seriatim, the "percentage" results obtained in each would, I venture, differ widely from those given in the article quoted, just as they would if they were expressed on a series of 100 cases, on which it would be statistically correct to generalize in percentages.—I am, etc.,

M. CORRY, Lieut.-Colonel I.M.S.,
Civil Surgeon, Rawalpindi, Punjab, India.

February 4th.

THE DIAGNOSIS OF PNEUMONIC PLAGUE.

SIR,—My reply to Dr. Dyce Sharp's question (December 27th, 1924, p. 1216) regarding the diagnosis between plague complicated with pneumonia and pneumonic plague is that the diagnosis depends on the physical properties of the sputum.

In plague complicated with pneumonia the sputum is very tenacious and viscid—at first blood-tinged, it becomes rusty; whereas in pneumonic plague the sputum is bloody and fluid, thus differing from the tenacious viscidity of plague complicated with pneumonia. The honour of first establishing this point in diagnosis is, I think, due to my late teacher, the late Lieut.-Colonel Childe, I.M.S., Professor of Medicine, Grant Medical College, Bombay.—I am, etc.,

H. C. DE PENNING, M.R.C.S., L.R.C.P.Lond.

Kotri, India, Jan. 28th.

ANTHRAX-INFECTED SHAVING-BRUSHES.

SIR,—The calamity which you announce to-day, of Professor Ellermann's death from an anthrax-infected shaving-brush, induces me, as one of the English cases that recovered, to put forward once more a simple suggestion, already printed elsewhere.

I advise my friends never to buy any shaving-brush, but to use instead a small red rubber sponge, which, with good shaving-soap, is as good as a brush, costs far less, and, above all, is safe. I always now use one myself.—I am, etc.,

Exeter, March 7th. W. GORDON.

THE LATE SIR JAMES MACKENZIE.

SIR,—I think the chief lesson we are to draw from a consideration of the life of this great clinician is that a decentralization of medical studies is urgently needed. Hitherto it has been taken as axiomatic that the cutting edge of medical progress must necessarily be in the great cities. Sir James Mackenzie declared otherwise. Note the three successive phases of his career. First, over a quarter of a century at Burnley, where he learned the fundamental importance of the general and the practical approach to medicine, as embodied in the general practitioner. But he came to realize that this in itself was not enough, and that upon this broad basis of practical knowledge something further needed to be engrafted—namely, that which is ordinarily spoken of as science. Accordingly, we next find him a distinguished specialist in London, where he carried out his world-renowned work on the heart. But, contrary to what might have been expected, this eager searcher after truth did not remain in London. And why? I venture to think that it is in this "gesture," initiating his third phase, that the chief lesson to our age of Sir James Mackenzie's life is to be found. Why did London not satisfy his soul? Let us leave aside immediate reasons, which those personally acquainted with him will best know, and let us try to realize the deeper underlying causes. It looks as if he came to say to himself something like this: "The general atmosphere of the metropolis—its whole *Kultur*—is fundamentally devoid of, even inimical to, that co-ordinating vital principle which is the most urgent need of our art to-day. Of course, it is pre-eminently in the great city that we are to seek for those sciences which are the necessary ancillaries of medicine. But to make all this really practical—in a word, to effect the liaison, the co-ordination, the correlation of these disparate sciences with practice—we must go elsewhere."

Sir James Mackenzie went to St. Andrews—that is, to a small centre, which, although not the Burnley of his earlier years, yet contained all that was best in Burnley, and, in addition, all that was best in urban medical culture. At St. Andrews he found a proper commixture—a *eucrasia*—of the rural and urban. Is not the key to our problem perhaps to be found in this: that in the small centre it is at least possible to be in more or less continuous personal touch with one's patient, to see and deal with him as a continuum, both in space and time? Whereas in the great city we cannot deal with real persons, with persons in their entirety, in their natural settings—social, domestic, economic, etc.—but only with parts of persons, or with moments in their lives, or with moments in the lives of parts of them.

If, then, we would draw a moral from the career of this latter-day Sydenham, it would, I submit, be, not certainly *delenda*, but at least *subjicienda est, Carthago*—and this, perhaps, not in medical matters alone.—I am, etc.,

Edinburgh, Feb. 6th. A. J. BROCK.

Medico-Legal.

LUNACY LAW AND ADMINISTRATION.

HARNETT *v.* BOND AND ADAM.

THE appeal of Mr. W. S. Harnett, farmer, of Sittingbourne, Kent, from the order of the Court of Appeal reversing the judgement of Mr. Justice Lush which mulcted Dr. C. Hubert Bond, a Commissioner in Lunacy, in £5,000 as damages, for detaining the appellant at the office of the Commissioners, on December 14th, 1912, and both the same respondent and Dr. G. H. Adam, of Malling Place, Kent, a licensed home for the reception of lunatics, in £20,000 damages for an alleged joint tort whereby the appellant was returned to Malling Place, and was kept there, and at successive mental institutions, from October 14th, 1912, until October, 1921, when he escaped and was never recertified, came before the House of Lords on Monday. In the Court of Appeal it was held that Dr. Adam was protected by Section 330 of the Lunacy Act, 1890, and that a new trial should be confined to ascertaining the damages sustained by Mr. Harnett by his detention in the office of the Commissioners at the instance of Dr. Bond for from two to three hours on December 14th, 1912.

A report of the King's Bench proceedings will be found in the BRITISH MEDICAL JOURNAL of March 8th, 1924 (p. 449 et seq.), and of the proceedings in the Court of Appeal in the JOURNAL of April 12th, 1924 (p. 692 et seq.).

The appeal was heard by the Lord Chancellor (presiding) and Lords Buckmaster, Atkinson, Dunedin, and Sumner.

Counsel were :—For the appellant : Mr. S. Cope Morgan and Mr. J. W. Morris; for Dr. Bond : the Attorney-General, Mr. Harold Morris, K.C., Mr. W. Bowstead, and Mr. Harold Murphy; for Dr. Adam : Mr. A. Neilson, K.C., and Mr. T. Carthew. Mr. T. Simpson Pedler held a watching brief for the British Medical Association.

The Pleadings.

The appellant's case was that the judgement of Mr. Justice Lush should be reaffirmed on the grounds (*inter alia*) that the learned judge was right in holding that it was a question for the jury to decide whether or not the detention of the appellant as a lunatic after December 14th, 1912, was the intended and/or natural and/or direct and probable consequence of the acts of the respondents, or either of them, and that the verdict of and damages assessed by the jury were reasonable and in accordance with the evidence; that the medical and other evidence showed that in no instance subsequent to the act of Dr. Bond was an adverse opinion concerning the appellant's mental state formed so independently as in law to constitute a *novus actus interveniens*; that such opinion was in each instance based upon the symptoms of excitement, resentment, and depression, which were the direct and natural consequence of the joint and/or several acts of the respondents, which constituted a joint tort; that the respondent, Dr. Adam, was guilty of a breach of duty for which the appellant was entitled to the damages awarded against Dr. Adam; that the condition attached by Dr. Adam to the Absence on Trial granted to the appellant under Section 55 of the Lunacy Act was without statutory authority, and that, alternatively, Dr. Adam was wrong in retaking the appellant, since his mental condition, as the jury had found, did not in fact require it; and, further, that Dr. Adam was wrong in retaking the appellant without first satisfying his own mind that the appellant's mental condition required it. In so acting, Dr. Adam was not entitled to claim that he acted in pursuance of the Lunacy Act, 1890, and, alternatively, the onus of proving the statutory defence under Section 330 (1) of the Lunacy Act, 1890, pleaded by Dr. Adam, lay upon him, and he had failed to discharge that onus. If the onus of proof lay upon the appellant, then he had discharged it. There was sufficient evidence to justify the finding of the jury that Dr. Adam did not take reasonable care in acting as he did, and the Court of Appeal was wrong in not ordering a new trial as against Dr. Adam. Finally, the order of the Court of Appeal as to the costs of the first trial against Dr. Bond was wrong and ought to be reversed.

Dr. Bond's case was that the judgement of the Court of Appeal should be affirmed, because Mr. Justice Lush had misdirected the jury on the question of damages. Any damage sustained after the appellant had returned to Malling Place on December 14th, 1912, and had been examined by Dr. Adam, was too remote and not recoverable in law from Dr. Bond, whilst the jury's minor apportionments of damage were merely the result of splitting up a sum arrived at on an inadmissible basis, and the sum of £5,000 as damages for the detention at the office of the Commissioners was excessive. The answers of the jury to the question whether the appellant on December 14th, 1912, (*a*) was of unsound mind, (*b*) was fit to be at large, (*c*) was dangerous to himself or others, and whether Dr. Bond honestly believed (*a*), (*b*), and (*c*), were against the weight of the evidence, and there was no evidence that Dr. Bond did not honestly believe (*a*), (*b*), and (*c*).

Dr. Adam's case was that the judgement of the Court of Appeal ought to be affirmed because on the findings of the jury he was not guilty of any joint tort, and it was only upon the basis of his being guilty of a joint tort that the appellant could succeed. He was not guilty of any several torts. He had acted throughout in pursuance of the Lunacy Act, 1890, in good faith and with reasonable care, and was entitled to the protection of Section 330 of that Act, there being no evidence proper to be left to the jury that he acted without good faith and without reasonable care. In any event, the learned judge misdirected the jury as to damages, which were too remote.

Hearing in the House of Lords.

Mr. Cope Morgan related the facts of the case, and pointed out that the action was one of damages for false imprisonment, and Dr. Bond admittedly had no defence.

Lord Atkinson : For the whole period?

Mr. Morgan : Certainly for the period Mr. Harnett was detained in the Commissioners' office.

Lord Buckmaster : Did he, in fact, try to get out of the office and was he prevented?

Mr. Morgan : Yes; he tried to get out to lunch; that has not been disputed.

Mr. Morgan said the action was not laid in negligence as was the case in Everett *v.* Griffiths (1921), 1 A.C. 631, and he emphasized that fact because the case had aroused widespread feeling on the part of the medical world, who supposed that the judgement of Mr. Justice Lush laid it down that any doctor who made a mistake in the course of diagnosis may be made liable for damages to a considerable amount. The Attorney-General (then Sir Patrick Hastings), in the Court of Appeal, had said that the real importance of the case was that it would be, practically speaking, impossible for a medical man to send a person who was a lunatic to an asylum if the law truly be that if he were found negligent in signing a certificate, he would be responsible in damages for the whole period during which the alleged lunatic was detained—that the effect of the judgement would be that nobody would ever sign a certificate and no one would keep anybody in a strait jacket : "We shall get the place flooded with gentlemen who ought to be in asylums because there is no protection at all for the doctor."

Lord Atkinson : If the doctor exercises reasonable skill and caution and signs a certificate is he guilty of false imprisonment?

Mr. Cope Morgan : No; and I am not suggesting that against the doctors who subsequently signed certificates in the long chain of years.

It was admitted that Dr. Bond had no more right to do what he did than he (counsel) had. Dr. Bond could not plead Section 330, but Dr. Adam did, and the jury specifically found that he had not exercised reasonable care. The Court of Appeal's proposition was that however rightly or wrongly a man was first sent to a lunatic asylum, then a Chancellor's visitor who saw him in the course of seeing 300 patients or so a day was to be regarded as a *novus actus interveniens*. Surely this must cover the case of a man sent to an asylum as the result of a tissue of lies as to his state of mind, due really to drugs administered by relatives who wanted to get rid of him, and who was consequently certified by medical men—if these certificates were each to be regarded as a *novus actus interveniens*, then it was plain that the original wrongdoers could not be made liable for the subsequent detention.

Mr. Cope Morgan dealt with the questions and answers of the jury, which were as follows :

1. Did Dr. Bond cause the plaintiff to be detained at the office until the attendants came for him?—Yes.
2. Did he cause him to be sent back for the purpose only of his being examined by Dr. Adam, or for the purpose of his being detained at Malling Place?—Being detained at Malling Place.
3. Did Dr. Bond cause the plaintiff to be taken back?—Yes.
4. Was the plaintiff of unsound mind on December 14th, 1912?—No.
5. Was he fit to be at large?—Yes.
6. Was he dangerous to himself or others?—No.
7. Did Dr. Bond honestly believe that the plaintiff was of unsound mind?—No.
8. Or that he was not fit to be at large?—No.
9. Or that he was dangerous to himself or others?—No.
10. Did he believe that the plaintiff had escaped from his brother's charge?—Yes.

[Mr. Cope Morgan here commented : It is common ground that the answer to Question 10 is explanatory of the answers to Questions 7, 8, and 9, the effect of the four answers being that Dr. Bond acted for the reason given in Question 10, and not because of any belief, honest or otherwise, concerning the applicant's state of mind.]

11. Did he take reasonable care to ascertain the true facts?—No.
12. Did he honestly believe that Dr. Adam had retained a power of taking the plaintiff back during the twenty-eight days in the Leave of Absence Order?—Yes.
13. Did Dr. Adam, when he received the telephone message and sent the car, honestly believe that the plaintiff, on December 14th, was of unsound mind and unfit to be at large?—Yes.
14. That it was in his interest that he should be taken back to Malling Place?—Yes.
15. Did he take reasonable care in acting as he did?—No.

[Question 16 was omitted.]

17. Was the detention of the plaintiff at the Commissioners' offices the act of Dr. Bond alone, or was it really the act of both the defendants?—Dr. Bond.

Lord Buckmaster observed that the Court below limited the measure of damages against Dr. Bond to the return of Mr. Harnett to Malling Place, and asked, What alternatives were there?

Mr. Cope Morgan submitted that there were four: (1) for the whole period of detention; (2) to January 9th, 1913, when the Absence on Trial Order properly expired; (3) to February 22nd, 1913, when Mr. Harnett was transferred from Malling Place to Croydon; (4) to November 10th, 1913, when the original reception order should normally have been renewed.

The hearing is continuing.

LOSS OF SIGHT OF ONE EYE AFTER ANAESTHESIA.

MURDOCK *v.* HOLMES AND TAYLOR.

A CASE of considerable importance to the medical profession was heard at the Leicester Assizes on February 28th and March 2nd and 3rd, before Mr. Justice Rigby Swift. The plaintiff, George A. Murdock, hosiery manufacturer of Leicester, sued Drs. W. Moffat Holmes and George Taylor, practising together in partnership, for damages for the loss of the sight of his left eye alleged to be due to their negligence during the administration of an anaesthetic for an operation. The defendants did not admit liability and denied the allegations.

Mr. Bernard Campion, K.C., and Mr. J. P. Stimpson appeared for the plaintiff, and Mr. Norman Birkett, K.C., with Mr. Maurice Healey, for the defendants. Dr. Holmes's defence was undertaken by the London and Counties Medical Protection Society, and Dr. Taylor's by the Medical and Dental Defence Union of Scotland.

Case for the Plaintiff.

Counsel, in opening the case for the plaintiff, said that about March 6th, 1924, Mr. Murdock was seized with abdominal pain due to appendicitis, and Mr. Bolton Carter, a surgeon, was called into consultation with the two defendants. An immediate operation was ordered, and was successfully performed the next day by Mr. Carter at the Highfields Hospital. Both the defendants were present, Dr. Taylor giving the anaesthetic. When plaintiff came round he complained of pain in his left eye. This continued, and on March 14th Dr. Holmes called in Mr. Ridley, an ophthalmic surgeon, who found that parts of the eye were very badly scarred. Counsel added that the eye was now blind, all that remained by way of sight being the perception of light. As to which of the two defendants was responsible did not matter, for they were in partnership and both were liable.

The plaintiff, in the course of his evidence, said he had acute pain in the eye for six or seven weeks after the operation. In reply to the judge, he said that the defendants had not told him that it was the anaesthetic that had done the mischief. In cross-examination by Mr. Birkett, he agreed that his illness had brought him to the "very gates of death." He did not know that any of the anaesthetic went into his eye; he only knew "what the doctors admitted."

Mr. N. C. Ridley, consulting ophthalmic surgeon, Leicester Royal Infirmary, said that when he first saw the eye there was slight inflammation. The patient was in a bad condition—so bad that it did not matter about the eye, and Mr. Ridley thought he was dying. The condition of the eye was consistent with some of the anaesthetic having got into it. It was a frightfully common thing for some of the anaesthetic to get into the eye during an operation, but the patient did not then generally lose the sight of the eye. Witness took it that what might cause little or no injury in a healthy person had produced in this patient a destruction of the eye tissue. He thought the plaintiff somewhat exaggerated the amount of loss of sight. In cross-examination Mr. Ridley said that this was the only case of the kind in which he had known serious results occur, and added that the accident might have happened, no matter how much care was taken.

Dr. T. E. A. Carr and Dr. A. D. Hunt of Derby were both called for the plaintiff, the former speaking from the ophthalmic surgeon's point of view, the latter as one who had had very large experience as an anaesthetist. Dr. Hunt explained the precautions he took to avoid getting any anaesthetic into a patient's eye, and the measures he would take to remedy such a mishap. He had never known a case so serious as this. This closed the case for the plaintiff.

Case for the Defence.

Mr. Birkett, in opening for the defendants, submitted that there was no case of negligence, and that there was no evidence whatever suggested against Dr. Holmes. His lordship said he was impressed with this argument in favour of no negligence on the part of Dr. Holmes; but Mr. Campion argued otherwise, and the judge then said that the case would have to go to the jury.

On the resumption on March 2nd Mr. Healey addressed the jury for the defence, submitting that there was no definite piece of evidence to justify the jury coming to the conclusion that one drop of liquid came near the plaintiff's eye, and that at no time during the operation could anything have been done to prevent this injury. Counsel pointed out that during the operation there were eight persons in the room—three doctors, the patient, and four trained nurses—yet none of the nurses had been called to say what carelessness the anaesthetist had been guilty of. Nothing that a skilful administrator would have done was left undone.

Dr. Taylor, giving evidence, said he had administered an anaesthetic thousands of times, and, after describing the precautions taken by him during operations, demonstrated the method of anaesthesia adopted in that case. There were, he said, no signs during the operation of any anaesthetic having got into the eye: he always covered the whole of the face, including the eyes, with a pad. In this case he changed the pad once during the operation because it was getting damp.

Dr. R. Wallace Henry, ophthalmic surgeon of Leicester, said he agreed with the evidence given by Mr. Ridley. While the anaesthetic might have been the immediate cause of the eye condition, the main cause was the anaesthetic acting on an eye in a toxic condition. He did not think that it was possible to stop vapour from getting into the eye.

Dr. J. Blomfield, anaesthetist to St. George's Hospital, London, expressed the opinion that an anaesthetic could get into an eye without there being any lack of care or skill.

Mr. F. Bolton Carter, surgeon to the Leicester Royal Infirmary, who performed the operation, said that the patient's condition before operation was extremely serious. It was only through the great care he received that he lived. There was no evidence that any liquid anaesthetic had got into the eye. With considerable experience of anaesthetics he declared that Dr. Taylor gave the anaesthetic remarkably well and skilfully. In such a case it was essential for the patient to be deeply under, and this would entail saturating the mask with the anaesthetic. Mr. Carter added that there was an epidemic of "pink eye" or "anaesthetic eye" at the Leicester Royal Infirmary last year, and an inquiry was held. The anaesthetics were administered by two highly experienced men, who were absolutely certain that in none of these cases had the liquid anaesthetic got into the eye. In the majority of the cases the patients were in a septic condition. The eye trouble in these patients cleared up within three or four days, except in one case, in which the eye had to be removed.

Dr. Holmes, one of the defendants, said he assisted Mr. Carter at the operation; he did not observe Dr. Taylor in giving the anaesthetic, and he had nothing to do with its administration. When he examined plaintiff's eye after the operation he attributed the inflammation to the anaesthetic vapour; there was much vapour about.

Dr. M. H. Barton, honorary ophthalmic surgeon, Leicester Royal Infirmary, said he had seen eyes in the condition like that of the plaintiff without the patient ever having an anaesthetic. The scar on plaintiff's eye was consistent with its having been caused by vapour and not by liquid. But vapour alone would not have caused the trouble in this case, and he agreed with Mr. Carter that the main cause was a germ. The next witness, Miss Evans, sister at the Highfields Hospital, said she observed nothing abnormal about the giving of the anaesthetic.

His Lordship said there was not the slightest evidence of personal negligence against Dr. Holmes; his reputation was absolutely clear; but he remained in the case as partner of Dr. Taylor.

Summing Up.

In the course of his summing up, Mr. Justice Rigby Swift said that the plaintiff had had the advantage of the best medical and surgical skill which could be obtained for him in Leicester, and fortunately his life was saved. Whether in the end the jury came to the conclusion that anyone was responsible for the injury to the eye, they must consider whether a case of negligence had been made out. Before plaintiff could get any damages they must be satisfied that he had experienced a very terrible injury and one for which, if he was to be compensated at all, he must be compensated by a very large sum of money. Here was a business man, getting past the prime of life, who said he was now unable to lead an active life and take complete control of his firm's works. If this were so, then the compensation should be very substantial, although, measured in pounds, shillings, and pence, no money the jury could give him would restore his blinded eye and put him back again as he was before the accident. If plaintiff was entitled to any damages, the jury must in arriving at the figure consider what had been done to him, not how much the defendants could afford to pay, nor what the consequences to the defendants would be if the verdict went against them. Before finding for the plaintiff the jury must be satisfied that in the administration of the anaesthetic Dr. Taylor did something which a reasonable person would not have done; they must not find for the plaintiff out of sympathy.

The Jury Disagree.

After an absence of an hour and three-quarters the jury returned to court and informed the judge that they were unable to agree. They then retired for eighteen minutes more, when the judge was again informed that agreement was impossible. The jury returned again and were discharged.

DIAGNOSIS OF DISLOCATION.

FREEBORN *v.* LEEMING.

DAMAGES amounting to £1,800, together with the costs of the action, were given by His Honour Judge E. H. Chapman, in the Grimsby County Court on February 18th, against Dr. R. W. Leeming of Kendal for negligence in failing to diagnose the dislocation of the left hip-joint of George Freeborn, formerly a travelling ganger, of Scunthorpe.

It appeared that at about 9 p.m. on September 5th, 1923, two policemen found the plaintiff on the road near Kendal in such a condition that he was unable to walk without help; he was charged with simple drunkenness and removed to a cell, where

he was left lying on a plank bed. Dr. Leeming, the police surgeon, was sent for the following morning, as the plaintiff complained of pains in his leg, and, having examined the plaintiff, ordered his removal to the Poor Law infirmary, of which Dr. Leeming was medical officer. The plaintiff remained under defendant's care until October 15th, 1923, when he left for his home at his own request, and, on the following day, his own medical attendant, Dr. Johnston, examined him and suspected a fracture of the neck of the femur. Dr. W. M. Shepherd, consulting surgeon, of Doncaster, was called in, and he came to the conclusion that the plaintiff was suffering from an unreduced dislocation of the left hip-joint. The plaintiff was thereupon removed to the Doncaster Royal Infirmary, and, as the result of an operation on November 18th, the plaintiff's left leg was now one inch shorter than the other, and, according to medical evidence, would always be somewhat shorter and always so weak that the plaintiff would never again be able to do hard work.

The plaintiff's case was that his hip was dislocated on September 5th, 1923, as the result of being run into by a car shortly before he was picked up by the police, and that his permanent disability was due to the defendant's failure in diagnosis.

The defendant contended that there was no dislocation of the left hip-joint, either on September 5th, 1923, or at any time while the plaintiff was under his care. He admitted, however, that on November 3rd, 1923, there was such dislocation, but this, he contended, took place at some time between October 15th, the day on which the plaintiff left the infirmary, and November 3rd.

His Honour, in giving judgement, said he was not satisfied that the plaintiff was drunk on the night of September 5th, although he thought the plaintiff's condition was partially due to the drink he had taken. There was a direct conflict of evidence as to whether the plaintiff told the defendant he had been run into by a car, but a police witness had said: "On the night of the accident the plaintiff answered questions all right;" whilst Nurse Knott said: "Freeborn asked me to ask the doctor not to state in the certificate that he was drunk at the time of the accident or he would not get the money." The defendant admitted signing a certificate on September 6th, in which he certified that Freeborn was suffering from severe bruising of the left thigh, the result of an accident, and a further certificate on October 12th, 1923, stating that Freeborn was unable to follow his employment owing to injuries received from a motor car on September 5th. His Honour, therefore, was of opinion that the plaintiff was injured by an accident with a motor car on September 5th, 1923, and that on the following day the plaintiff did inform the defendant of such accident. The defendant was bound to bring to the plaintiff a fair, reasonable, and competent degree of skill and care, and he (his Honour) came to the conclusion that the defendant was negligent in each one of the particulars alleged, except the one of "disregarding the plaintiff's complaints that the bones were injured." He found that the defendant was not negligent in that respect, for he was not satisfied that the plaintiff ever complained that the bones were injured. As to the defendant's plea that the action had not been brought within six months of the cause of action accruing—a protection afforded by the Public Authorities' Protection Act, 1893—his Honour held that the cause of action arose after November 1st, 1923, and that therefore the action was started (April 25th, 1924) within the six months. As to damages, the plaintiff was a strong, healthy man, aged 53, and his wages were £6 a week. If he had been properly treated from the first he would have been laid up for six weeks, and would have been fit for light work in about three months after the date of the accident, and eventually have recovered the full use of his limbs. As it was, the plaintiff was left with one leg permanently shorter than the other and permanently weak, and was still unable to walk without the help of crutches, although it was hoped he would be able to dispense with these in five or six months' time. In his opinion, the plaintiff should not be prejudiced in respect of damages in view of the fact that had it not been for lack of funds the case would have been tried in the High Court, from which it had been remitted.

Universities and Colleges.

UNIVERSITY OF CAMBRIDGE.

Pinsent-Darwin Studentship in Mental Pathology.

THIS studentship was founded in 1924 by the benefaction of Mrs. Pinsent and Sir Horace and Lady Darwin for the purpose of promoting research into any problem which may have a bearing on mental defects, diseases, or disorders. The studentship is of the annual value of about £200 and is tenable for three years in the first instance. The student may be of either sex, and need not be a member of the University of Cambridge. He will be required to engage in original research in Cambridge or elsewhere, but may, subject to the consent of the managers, carry on educational or other work concurrently. Further particulars of the studentship may be obtained from the Registrary of the University of Cambridge, and applications for appointment to the studentship should be sent before May 1st to the Secretary, Pinsent-Darwin Studentship, Psychological Laboratory, Cambridge. Applicants should state their age and qualifications and the general nature of the problems in which they are interested, and should give the date at which they would be prepared to begin work if appointed. No testimonials are required, but applicants should give the names of not more than three referees.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

COUNCIL ELECTION.

THE secretary of the College of Surgeons has sent out the usual announcement, which, on this occasion, states that a meeting of the Fellows will be held at the College on Thursday, July 2nd next, at 2.30 p.m., for the election of three Fellows into the Council in the vacancies occasioned by the retirement in rotation of Mr. V. Warren Low, C.B., Mr. James Sherren, C.B.E., and Sir John Lynn-Thomas, K.B.E., C.B., C.M.G.

Blank forms of the requisite notice from a candidate and of his nomination may be obtained on application to the secretary, and the same must be received by him duly filled up within ten days from this date—that is, not later than on Monday, March 16th. A voting paper will be sent by post to each Fellow whose address is registered at the College on March 31st. Fellows are requested to give notice, without delay, of any change of address, so that voting papers may not be mis-sent.

Obituary.

JOSEPH ARDERNE ORMEROD, M.D., F.R.C.P.,

Registrar of the Royal College of Physicians of London; Consulting Physician, St. Bartholomew's Hospital and the National Hospital for the Paralysed and Epileptic, Queen Square.

BY the death on March 5th, after an operation for a perforated duodenal ulcer, of Dr. J. A. Ormerod the Royal College of Physicians of London has lost its able and devoted registrar, a scholar, and a lover of its traditions, who was at his usual work as lately as February 27th.

He was born on April 7th, 1848; he was the second son of the Venerable T. J. Ormerod, Archdeacon of Suffolk, and came of an old and distinguished Lancastrian family; his grandfather, George Ormerod, F.R.S., of Tyldesley and Sedbury Park, the historian of Cheshire, married Sarah, the daughter of John Latham, M.D., F.R.S., President of the Royal College of Physicians (1813-19), and father of Peter Mere Latham. Of George Ormerod's seven sons and three daughters four obtained a niche in the *Dictionary of National Biography*: George Wareing Ormerod was a well known geologist; William Piers Ormerod, anatomist, surgeon, and sanitarian, and Edward Latham Ormerod, who, like his nephew, was demonstrator of morbid anatomy, were educated medically at St. Bartholomew's Hospital; Eleanor Anne Ormerod earned a deservedly high reputation as an economic entomologist, and was the first woman to receive the honorary LL.D. of Edinburgh. Dr. Ormerod's eldest son, Major George Ormerod, D.S.O., is chief constable for East Essex; his second son, Henry Arderne Ormerod, *M.C.*, is professor of Greek in the University of Leeds and author of *Piracy in the Ancient World*; one of his daughters is married to Dr. J. B. Christopherson, C.B.E., F.R.C.P.

Following in the footsteps of his father and uncles, Ormerod went in 1862 to Rugby and in 1867 to Oxford, where he was a classical scholar at Corpus, being placed in the first class in moderations (1869), in the second class in *literis humanioribus* (1870), and, after deciding to follow the physic line, in the first class in natural science (1871); in addition he won the Chancellor's prize for Latin verse (1869) for "Exercitus Indo-Britannicus ex Abyssinia Redux," and a Fellowship at Jesus College (1871).

Entering the medical school of St. Bartholomew's Hospital in October, 1872, he qualified B.M.Oxford in 1875, proceeding to the D.M. in 1882 with a dissertation "On epilepsy in its relation to ear disease," and after holding a number of appointments, including medical registrar and demonstrator (1887), was elected assistant physician (1893), physician (1904), and consulting physician (1913). He was also physician to out-patients (1878) and physician (1888-93) to the City of London Hospital for Diseases of the Heart and Lungs, Victoria Park, where he interested himself in laryngology, and assistant physician (1880), physician (1900), and consulting physician (1913) to the National Hospital for the Paralysed and Epileptic, Queen Square, where, as secretary of the medical staff, he did yeoman service in smoothly settling the impasse that arose between the staff and the lay board in 1901. During the war he was physician to King George Hospital, Stamford Street. His bent in medical work was mainly neurological; in 1892 he

brought out *A Student's Guide to Nervous Disease*, and his abilities were rightly recognized by his election as president of the Neurological Section of the Royal Society of Medicine (1910-11), where his presidential address dealt with "Two theories of hysteria," that of Pierre Janet and that of Breuer and Freud. Among his published papers, more than a score of which appeared in *St. Bartholomew's Hospital Reports* and more than a dozen in *Brain*, attention may be drawn to those on the myopathies and to his account of a case, in 1890, of what is now known as progressive lenticular degeneration or Wilson's disease, in which the cirrhotic condition of the liver was recognized, and to his articles in the *System of Medicine* on cerebrospinal fever, tabes dorsalis, and hysteria.

At the College of Physicians, with which the later part of his life was closely associated, he became a Member in 1877, a Fellow in 1885, delivered the Harveian Oration in 1908 on "Heredity in relation to disease," and the Lumleian Lectures in 1914 on "Some modern theories concerning hysteria"; was appointed assistant registrar in 1908, and in the following year succeeded the late Dr. E. Liveing as registrar. He also examined for the Conjoint Board (1907-8), and was on the Council (1903-5). Like his late colleague, Sir Norman Moore, whose obituary notice he wrote in *St. Bartholomew's Hospital Reports*, he was by education and tastes admirably fitted to be an official of the College of Physicians. Further, his orderly mind with a lawyer's keen sense for possible pitfalls and fallacies, his power of hard work, and his knowledge of the statutes, by-laws, and regulations of the College, made him peculiarly suitable to be its registrar. Few realize how much falls on the holder of this office, not only at the College, but in connexion with the board of management of the Conjoint Examining Board in England. His shrewd common sense was eminently shown in statements drawn up for decision by the legal advisers of the College. He certainly had no love for change merely for the sake of change; he was indeed somewhat critical of any alteration in the laws, and was properly zealous of any infringement of the rights of the College to which he was so deeply attached. When any change was made he carried it out most loyally and cheerfully.

A most considerate and unselfish colleague, he was entirely wanting in self-assertive dogmatism and often seemed loath to differ at first from others, as if for fear of hurting their susceptibilities; but, while most conciliatory, he eventually always made his point of view quite clear. Extremely modest and reticent, his strength of character was not always obvious to those who did not know this upright and kindly gentleman. Although he had a trying illness in the latter half of last year and had the misfortune of losing his wife two months ago, he retained to the end an appearance of a man much younger than his age, and this may well have been connected with the freedom from any feelings save those of kindness towards his fellow men.

H. R.

CLAUDE BUCHANAN KER, M.D., F.R.C.P.,

Medical Superintendent, City Hospital, Edinburgh.

THE death occurred on Wednesday, March 4th, of Dr. Claude Buchanan Ker. Dr. Ker had been in his usual health up to February 25th, when he showed symptoms of an influenzal attack, during which a severe form of bronchopneumonia developed, and under this he gradually sank. He had been for twenty-eight years medical superintendent of Edinburgh City Hospital, and in this capacity acted as university lecturer on infectious fevers from 1904 onwards. Thus he had become well known to many successive classes of medical students, by whom he will be universally missed.

After graduation as M.B., C.M. in 1890 he acted during the summer of 1891 as resident surgeon in the Royal Infirmary with Dr. Peter Maclaren, and later became resident surgeon in the Royal Maternity Hospital, Edinburgh, and clinical assistant to the lock and observation wards of the Royal Infirmary. For a time also he acted as assistant medical officer at the Edinburgh Fever Hospital. In 1891 he gained the certificate of the Medico-Psychological Association of Great Britain, and in 1896 he graduated M.D. at Edinburgh University, receiving a gold medal for his thesis. In 1891 he joined the Royal College of Physicians as a Member, proceeding to the Fellowship in 1901. He became medical superintendent of the City Hospital for infectious disease while it was still situated in High School Yards, and was transferred to the new hospital at Colinton Mains when it was opened in 1903. Here his activities had been centred for the last twenty-two years, and he had devoted himself with great ardour and success to the investigation and treatment of different types of infectious diseases. For several years before his death he was a member of the council of the Royal College of Physicians, and two years ago he was elected a representative of the College on the board of management of the Royal Infirmary, Edinburgh.

His *Manual of Fevers* attracted widespread attention when it appeared first in 1909. A second edition was published in April, 1920. This came to be recognized as one of the most authoritative manuals on the subject in the English language. It was followed by the smaller *Infectious Disease: A Practical Textbook*, intended for the use of students, which attained an even greater degree of popularity. In these manuals his personal opinions, derived from wide experience, are chiefly found. In addition to these, occasional papers emanated from his pen upon the naphthols in enteric fever, on isolation and quarantine periods, and on the question whether there is a "fourth disease."

Dr. Ker was a lucid, stimulating, and erudite teacher, whose lectures enjoyed great popularity with his students. His opinions, whether expressed at meetings of the profession or at individual consultations to which he was widely called, were always received with great respect and attention. The Edinburgh medical school will be much poorer by reason of his loss.

He is survived by a widow, two sons, and three daughters. The interment took place on March 7th in the Morningside Cemetery, Edinburgh, and was attended officially by the Fellows of the Royal College of Physicians, as well as by a large number of friends and representatives of the medical profession.

We are indebted to Dr. ANDREW BALFOUR for a tribute to Dr. Ker's memory, from which we extract the following:

Ker was intensely alive, intensely human, full of humour and sympathy, and utterly devoid of anything savouring of advertisement or self-seeking. Withal he was a man of great force of character, with strong likes and dislikes, and capable, very capable, of standing up for what he conceived to be the right. Yet he very rarely found himself in conflict, for he possessed much tact and discretion and a store of atience which time and again stood him in good stead. I first met him in 1896 when, having been appointed assistant physician at the Edinburgh City Hospital, I called at the Old Pest House, as we called it, at the foot of Infirmary Street, to be interviewed by the medical superintendent. He had recently been appointed to the post. I was shown into a small room, and presently there entered with a brisk step and a curious swing of the body a man of medium height, who wore a monocle, through which an eye afflicted, though not unpleasingly, by an internal strabismus, surveyed me searchingly. He wore a blue velvet tasselled skull cap, was clad in a long white overall, and carried a wooden stethoscope of prodigious length. He spoke like an Englishman, kept flicking cigarette ash on the floor, and his manner was decisive, even a little brusque. He seemed to me rather nervous, and I gathered he did not quite approve of my appointment, which had been made at the instance of Sir Henry Littlejohn. Certainly he made it quite plain that I was there to carry out his instructions, though he indicated, also quite clearly, that he realized I might have views of my own, and that he was prepared to accord them every consideration. As I told him long afterwards, my first thought was, "How can I work under this man?" Yet very soon I had fallen, as did all his assistants and all his residents, under the spell of his personality. I had some slight acquaintance with French history, and I found that Ker was a great student of the Napoleonic era, and was never tired of hearing him descant on Bonaparte's strategy and recounting how he had secured the prints, statuettes, and relics with which his room was filled. Beyond doubt, he might have been an admirable professor of military history, for he had a flair for tactics. It was probably his military bent which led him to take a commission, first in the Volunteers and then in the Territorials. I found he was interested in sport and athletics, especially in

Rugby football. Above all, he had a keen sense of humour, and could write most amusing and delightful letters, either in verse or prose. We soon formed a friendship which stood the test of time and distance, the memory of which will ever remain precious and fragrant.

Ker had a host of friends. It was the custom then, and I understand it remained a custom, for his old residents to gather in his room on Sunday evenings and discuss all manner of things. He was ever the life and centre of these reunions. Not infrequently they took the form of discussions on fever cases and medical problems, and, as Ker's knowledge of fevers increased, so did the value of his expositions. No more profitable evenings can be imagined than these informal gatherings in the venerable building, full of memories of Sir Walter Scott, of the anatomist Knox, and of Burke and Hare, the West Port murderers. In those early days I was privileged to get some insight into his views and his schemes for the future. With Baillie Pollard, convener of the Public Health Committee, he spent hours in planning the new hospital which was to be built at Colinton, facing those Pentland Hills for which he had an affection almost equalling that of Robert Louis Stevenson. He entered upon the task with enthusiasm, and it cannot be doubted that it was largely due to his efforts that the present City Hospital became a credit to Edinburgh, while it is undoubtedly due in the main to him that it attained such a high degree of efficiency. No man was ever more popular with his staff. He had a way of getting the best out of them, and set an example of devotion to duty and of tireless, yet painstaking, energy which acted as a stimulus to all. He was a member of a small literary club which, beginning as the Heptagon, became an Octagon. Its membership was confined to a few medical men who met at each other's houses. Here, again, Ker was the life and soul of the party. He never missed a meeting throughout the twenty-five years of the club's existence, and, at the last but one, a full meeting to celebrate its twenty-fifth aniversary, he broke one of its rules, with the full consent of the members, by declaiming an ode which he had composed for the occasion, and which revealed considerable poetic talent. It was agreed to have a similar reunion in ten years' time, but alas! that hope can never be realized. There are many who mourn his loss, and his memory will remain ever green in the hearts and minds of those who knew his sterling worth and valued his company and his friendship. The world to-day, and his own world of Edinburgh in particular, seems woefully the poorer because Claude Buchanan Ker has passed to his well earned rest.

J. J. GRAHAM BROWN, M.D., F.R.C.P.Ed.,

Consulting Physician, Edinburgh Royal Infirmary.

THE announcement of the death of Dr. J. J. Graham Brown, which took place on February 28th at his residence in Edinburgh, has been received with deep regret. He had been ill for some time, and his death occurred shortly after an operation.

Graham Brown graduated M.B., C.M. in 1875, and afterwards became resident medical officer in Chalmers's Hospital, Edinburgh, and later acted as resident physician in the Royal Infirmary to Sir Thomas Grainger Stewart, and in the following year as resident surgeon to Professor Spence. At the same time he was elected senior president of the Royal Medical Society, in the affairs of which he took a great interest. After a year spent at medical schools on the Continent, he returned to Edinburgh and took the degree of doctor of medicine in 1878, and joined the Royal College of Physicians of Edinburgh as a Fellow in 1882; later in life he was its president. In 1885 he went, in company with Professor Sir Charles Sherrington and Professor C. S. Roy, to Spain as member of a commission which had been appointed by the Royal Society of London to investigate an epidemic of cholera then prevailing in that country. During these early years he interested himself mainly in scientific investigation, and his work done in collaboration with Professor Roy, on the capillary blood pressure, is particularly well known. The subject in which he specially interested himself was, however, neurology, and his distinction in this subject was recognized by the University of Edinburgh in his appointment to the lectureship on neurology, which was established by the university in 1909.

Among his publications were *A Manual of Clinical Methods*; and papers on change in the circulation produced by rise of temperature; on the perigraph, an instrument for delineating the shape of the thorax; on ataxia; on asthma, its pathology and treatment; and on sthenic dyspepsia, most of which appeared in the *Edinburgh Medical Journal* at various times.

In 1897 he was appointed an assistant physician to the Edinburgh Royal Infirmary, and he continued to serve in that capacity until 1912, when he became one of the ordinary physicians. He was a successful and painstaking teacher of clinical medicine for five years until 1919, when, on his retirement at the age limit, from the post of ordinary physician to the infirmary, he was appointed a consultant physician. He had been connected as medical officer with the Scottish Life Assurance Company since its inception, and was a recognized authority upon life insurance matters. A tribute to his eminence in neurology was his election in 1912, and again in 1918, by the Royal College of Physicians, Edinburgh, as Morrison lecturer on mental diseases for the year.

Dr. Graham Brown, who was a widower, is survived by three sons and one daughter; the eldest son is Professor T. Graham Brown, professor of physiology in University College, Cardiff. The interment, which took place in the Dean Cemetery, Edinburgh, on March 3rd, was attended by numerous friends and leading members of the medical profession.

ALFRED J. SMITH, M.B., B.Ch., R.U.I.,

Professor of Midwifery and Diseases of Women, National University, Ireland.

WE regret to announce the death of Professor Alfred J. Smith, which took place recently, after a very short illness, at his residence in Dublin. Professor Smith was the son of the late Philip Smith, of Kevit Castle, Crossdoney, County Cavan. He was educated at St. Patrick's College, Cavan, and at the Royal University in Dublin, where he graduated; he later pursued his professional studies at Leipzig, Berlin, and Vienna. He had been vice-president of the British Gynaecological Society and president of the Obstetric Section, Royal Academy of Medicine. He had held the office of Assistant Master of the Rotunda Hospital, of which institution he was licentiate (1884), and was professor of midwifery and gynaecology at the National University of Ireland, and gynaecologist to St. Vincent's Hospital, Dublin. He contributed many papers to various societies and journals on subjects that interested gynaecologists. Professor Smith was a great follower of sport in all its branches. He constantly attended Rugby football matches, and was a keen golfer; he was also a member of the Leopardstown and Phoenix Park Race Clubs. His death, at a comparatively early age, will be regretted by his many friends.

THE LATE DR. T. L. BUNTING.

IN our issue of February 28th (p. 433) we recorded with regret the death of Dr. Thomas Lowe Bunting. We have now received an appreciation contributed jointly by Dr. J. McCracken and Dr. H. Rutter, from which we quote the following extracts:

Dr. Bunting while at the University of Edinburgh became associated with Professor Patrick Geddes's work amongst the students, then just beginning, which grew into the Town and Gown movement, and had for its object to make the students take an interest in the welfare of the poor. This interest lasted with him all through his life. After leaving Edinburgh he went first to an asylum near Buxton, and thence came to Newcastle, where he joined the old Fabian Society, at that time the nursery of Bernard Shaw, Graham Wallas, Sidney Webb, and others who have since become famous. Then, as always, he took a deep interest in all social problems. Many of his colleagues remember long discussions on such subjects, from which, owing to his wide knowledge of every side of the matter, he always came off best; but these talks never cost him a friend, and it was their peculiarity that after them he was always on better terms with his opponents than before. In 1904 he proceeded M.D., gaining a gold medal for his thesis, which was on the histology of lymphatic glands—the general structure, the reticulum, and the germ centres. Little had been done in this field since the classic investigations of His, which had been accepted for very many years. But His had made his observations on the glands of the ox, the structure of which Bunting found to be peculiar to the species and very different from the arrangement really found in man.

Fortunately at that time there was a menagerie in Newcastle, and by securing the bodies of the animals that died there he was enabled to carry on his comparative investigations on a very wide scale. He completed this highly difficult research without any aid from a laboratory, and had to prepare his specimens, cut sections, and examine them microscopically in his surgery amid the constant interruptions incident to a large general practice. This thesis, as well as being rewarded by his University, gained him the distinction of being elected to the Royal Society, Edinburgh. Though Dr. Bunting had a most successful and useful life in other departments, yet he was never in his real element, and his most intimate friends know that any opening that could have led to his becoming a teacher and investigator of physiology would have allowed him to live his life to the full. He was first interested in medico-political matters through his being on the old Northumberland Contract Committee before it was taken over by the British Medical Association From this he finally became a leading figure in the North-east of England as secretary of the Newcastle Panel Committee, one of the elected medical representatives on the Newcastle Insurance Committee, and secretary of the North-eastern Group of Panel Committees. The agitation in 1912 over the Insurance Act came to Dr. Bunting as a call for work on behalf of the profession. This led to his devoting an increasing amount of thought and time to medical politics until he became in Newcastle the guide and adviser of the Panel Committee in general and of many individual doctors in particular. It thus became generally realized, both by the doctors themselves and by the outside public, that he was a force to be reckoned with. By means of letters in the newspapers he clearly outlined the aims and position of the medical profession, whilst in the Insurance Committee he was able to clear away many misunderstandings and difficulties that otherwise might have led to serious friction. One striking characteristic in all that he did was his absolute conscientiousness, which he carried at times to a point to which few would have cared to go. He was very loyal as secretary of the Panel Committee and carried out its decisions, even against his own well informed judgement. The position he finally came to occupy among us was due to several causes. In the first place, his honesty of purpose and sense of justice was balanced by intimate knowledge and insight into medical politics; he thus was able when he spoke, not only to marshal facts and arguments, but also to keep in view the underlying principles that were involved.

ARMAND DE WATTEVILLE, M.D.,

Formerly Editor of *Brain*.

THE announcement of the death of Dr. Armand de Watteville will recall many memories to those who knew medical London in the fourth quarter of the nineteenth century. De Watteville lived a very full life for some thirty years, and then rather unexpectedly retired; after spending some time in Scotland he went to live in Switzerland. His family belonged originally to that country, but had been compelled to leave it during the revolution of 1797, and had settled in Great Britain; many of its members served in the British Army. Armand de Watteville was commonly spoken of as "Baron," and had, we believe, a good claim to bear that title. He was born in 1846, and was educated at King's College, University College, and St. Mary's Hospital. In 1870 he went with a British Red Cross ambulance, and subsequently served in a French Regular ambulance with the Army of the North till the end of the war. During the confusion that followed the collapse of the French resistance he was arrested and sentenced to be shot as a Communist, but his mother's letters carried in his pocket saved his life. He graduated M.A., B.Sc.Lond., and took the diploma of M.R.C.S.Eng. in 1876, and the degree of M.D.Basel in 1882. At an early date he turned his attention to medical electricity, remarking, with a characteristic smile, that it was a small subject, all the literature of which could be put on to one shelf in a bookcase. He took to the subject very seriously, and in 1878 published a book, entitled *A Practical Introduction to Medical Electricity*, which reached a second edition in 1884. He did not confine himself to this particular department of therapeutics, but extended his study to neurology generally. *Brain* had been started in 1878 by Sir James Crichton-Browne, Sir John Bucknill, Dr. Hughlings Jackson, and Sir David Ferrier; de Watteville became its editor in 1884. At the end of 1885 the Neurological Society was founded at a meeting held at his house, and with vol. x (1888) *Brain* became the journal of the society. De Watteville was secretary of the society from 1886 to 1889, and a member of its council from 1890 to 1895, and from 1896 to 1900, when he was succeeded as editor by Dr. Percy Smith, who again was succeeded by Dr. Henry Head in 1905; three years ago Dr. Henry Head gave place to Dr. Gordon Holmes. De Watteville at one time held the post of physician to the electrotherapeutic department, St. Mary's Hospital, and was also physician to the West End Hospital for Nervous Diseases. During his time in London he was a prolific writer; he was a frequent contributor of signed articles to this JOURNAL, and was also a member of the editorial staff. He was a good mountaineer, as became one of his extraction, and among his achievements as a climber was the third ascent of the Great Eiger. He leaves, we understand, two sons, one of whom was a director of the Red Cross bureau for the care of prisoners of war, and after the armistice worked under the League of Nations in repatriating prisoners of war.

Professor ADOLF STRÜMPELL of Leipzig, the author of a well known textbook of medicine, has died at the age of 71.

Professor EDMOND WEILL, who occupied the chair of children's diseases in the Lyons Faculty of Medicine, has died at the age of 66.

With reference to the late Dr. Wilberforce J. J. Arnold, of whom an obituary notice appeared in our issue of March 7th (p. 486), Dr. F. R. Proctor-Sims, a fellow student, writes: "A quiet, unassuming man, Arnold was nevertheless of great strength of character and of sterling honesty of purpose. His untimely death, coming so soon after he had been made a C.M.G., has deprived his country of a faithful and useful servant, and will be a source of regret to his many friends."

Medical News.

SIR ARTHUR KEITH, F.R.S., will give a spring course of demonstrations in the museum of the Royal College of Surgeons of England on Fridays, March 20th and 27th and April 3rd, at 5 p.m. on each day. The first will deal with the surgical anatomy of the middle ear, the second with the commoner congenital malformations of the lower limbs, and the third with acromegaly and allied disorders of growth.

THE first Nichols prize of the Royal Society of Medicine has been awarded to Dr. George Geddes of Heywood, Lancashire, for an essay entitled "The causation, prevention, and treatment of puerperal septicaemia." This prize of £250 is to be awarded every third year, in accordance with the will of the late Dr. Robert Thomas Nichols, for the most valuable contribution towards the discovery of the causes and prevention of death in childbirth from septicaemia. Work submitted for the second award should reach the secretary of the Royal Society of Medicine not later than October 1st, 1927, typewritten or printed in English, marked "Nichols Prize," and accompanied by the name and address of the author. Essays previously published may be submitted provided that they were not published before October 1st, 1924.

THE Central Midwives Board for England and Wales met on March 5th, when Sir Francis Champneys was in the chair. It was reported that the representatives of the Ministry of Health on the Board for the ensuing year will be Dr. Marguerite Alice Christian Douglas-Drummond, Miss Edith Greaves, Miss Olive Haydon, and Dr. F. N. Kay Menzies. The chairman paid a tribute of appreciation to Lady Mabelle Egerton, who had worked on the Board for sixteen years, and alluded also to the impending resignation of Miss Paget in terms of warmest recognition of her long and valuable service. It was agreed to proceed with the printing of the Midwives Roll for 1924. Dr. Henry Lewis Barker was approved as lecturer subject to conditions. The next meeting will be held on May 7th.

DURING the past year the work of the Cicely Northcote Trust in connexion with St. Thomas's Hospital has increased considerably in all its branches. The fifteenth annual report covers the year ending October, 1924, and illustrates the many-sided activities of the Trust. The work of the Trust includes the adjustment of financial and other difficulties in connexion with patients, the provision of convalescent treatment, surgical instruments and artificial limbs, the after-care of patients suffering from cancer and other diseases, and a hostel, opened in 1920, for women and girls suffering from

venereal disease. It is possible that fresh ground may be broken in the future, since there appears to be need for the provision of a hostel for mothers and babies on their discharge from the present venereal diseases hostel, so that the mothers could go to work leaving their children under supervision. The income for the year amounted to £3,005, including grants from St. Thomas's Hospital, the Ministry of Health, the payments of patients, and donations. There was a balance of £75 of income over expenditure on the year's working.

DR. OCTAVIUS HALL, late medical officer of health for the County Borough of Plymouth, has been presented on his retirement with a solid silver tea and coffee service, a silver salver and cigarette case, and bound volumes of the reports issued whilst he was medical officer of health for Plymouth and Devonport. Dr. Hall has now been appointed permanent consulting medical officer of health to the borough. The presentation was made on February 26th, when Dr. Hall entertained the staff to dinner, and many tributes were paid to his services to Plymouth.

THE annual meeting of the Mental After-Care Association will be held at the Clothworkers' Hall, Mincing Lane, E.C., on Wednesday, March 18th; the chair will be taken by Sir Charles C. Wakefield, Bt., president of the association, at 3 p.m.

A LECTURE on misplaced teeth will be given by Mr. W. H. Dolamore at the London Hospital Dental School on Tuesday, March 24th, at 5 p.m. Members of the profession and students are invited to attend.

AT a meeting of the Royal Sanitary Institute at the Town Hall, Leicester, on Friday, March 27th, a discussion on maternity and child welfare work will be opened at 3.30 p.m. by Dr. Helen Dent and Mrs. C. J. Bond, J.P. This will be followed at 5.30 p.m. by a discussion on smoke abatement. At 8 p.m. Professor H. R. Kenwood, C.M.G., M.B., will give a popular lecture on "Healthy living—facts and fads."

THE Fellowship of Medicine hopes that there will be a large attendance of medical practitioners, whether resident at home or from overseas, to take part in the discussion on post-graduate study in London at No. 1, Wimpole Street, on March 18th, at 6 p.m. Sir Arbuthnot Lane will preside, and criticism will be welcomed of the present facilities offered through the Fellowship, with suggestions for their improvement. A course at the Brompton Hospital for Consumption and other Diseases of the Chest from March 16th to 28th will have special reference to treatment by artificial pneumothorax; various diseases of the lungs and heart will be dealt with and illustrated clinically. A course in gynaecology at the Chelsea Hospital for Women from March 16th to 28th will include clinical lectures, demonstrations, and the opportunity of witnessing typical operations. An intensive course will be held at the Royal Northern Hospital from March 23rd to April 4th comprising demonstrations, clinics, operations, exhibitions of cases, and formal lectures; application for admission to the course should be made by March 16th. During April courses will be held at the Queen's Hospital for Children, St. Mark's Hospital for Diseases of the Rectum, and the Hampstead General Hospital. A week's course in anaesthetics, beginning about March 23rd, will include practical instruction in throat, nose, dental, abdominal, and nerve anaesthesia; early application is desirable. Further information about these courses may be obtained from the Secretary to the Fellowship, No. 1, Wimpole Street, W.1.

THE annual meeting of Woolcombers, Limited, held at Bradford on March 9th, decided to give £13,000 to the new building fund of the Bradford Royal Infirmary; the contribution will be made in thirteen half-yearly instalments.

RECENTLY a number of metropolitan medical officers of health visited the Oxo factory and witnessed the process of manufacture of Oxo and of the standardization of "oxoid" gland preparations. Any reader who wishes to visit the factory should communicate with Oxo, Limited, Southwark Bridge, S.E.1.

IT will be remembered that 300 members of the Inter-State Post-graduate Assembly, directed by the Tri-State District Medical Association, which has some 55,000 members in the United States, are coming to this country next June, when a meeting will be held in London under the presidency of Dr. Charles Mayo. The party will afterwards go on to Manchester, Liverpool, Leeds, Dublin, Belfast, Glasgow, Edinburgh, and Newcastle. We are informed that H.R.H. the Duke of York has consented to accept the honorary membership of the Assembly when it meets in London on June 2nd.

A COURSE in children's diseases has been arranged under the auspices of the Paris Faculty of Medicine, from April 6th to 18th inclusive, at the Hôpital des Enfants Malades, 149, Rue de Sèvres, Paris. The subjects include infantile syphilis, endocrine syndromes, mediastinal tuberculosis, and modern conceptions of cerebro-spinal meningitis, rickets, and measles.

THE area of operations of the King's Fund has been extended from a radius of nine miles of Charing Cross to a radius of eleven miles of St. Paul's. Hospitals within this area desiring to participate in the grants made by the Fund for the year 1925 must make application before March 31st to the honorary secretaries of the Fund at 7, Walbrook, E.C.4. Applications will also be considered from convalescent homes which are situated within the above boundaries or which, being situated outside, take a large proportion of patients from London.

IN July, 1924, a medical research group was formed to make an investigation into the subject of "spiritual healing" in order to prepare and issue a statement on the question. We are informed that the group is holding conferences with representatives selected by the churches and is exploring other avenues of research. The members of the group are: Sir Robert Armstrong-Jones, Dr. Helen Boyle, Dr. H. C. Bristowe, Dr. William Brown, Dr. Charles Buttar, Mr. W. McAdam Eccles, F.R.C.S., Dr. Letitia Fairfield, Dr. E. R. Fothergill (chairman), Dr. J. G. Porter Phillips, Dr. Mary Scharlieb, Sir. J. Purves-Stewart, Mr. E. B. Turner, F.R.C.S., Dr. Jane Walker, Dr. Stanley Bousfield (honorary secretary, 10, Albion Street, W.2).

THE Boylston medical prize of Harvard University, including a medal and 500 dollars, is offered for 1925 for the best essay on the results of any original research in medical or chemical science. Essays must be printed or typewritten, and be sent in before December 31st. This prize is open to public competition. Further details may be obtained from the secretary of the Boylston Medical Committee, Dr. Henry A. Christian, Peter Bent Brigham Hospital, Boston, Mass.

THE twelfth Northern Congress of Internal Medicine will be held at Stockholm from August 27th to 29th, when a discussion will be held on the pathogenesis of jaundice and functional diagnosis of the liver, introduced by Dr. E. Meulergracht of Copenhagen, Dr. O. Scheel of Oslo, and Dr. Tillgreen of Stockholm. Communications intended for the Congress should be sent to the secretary, Dr. Norgaard, Tordenskjoldsgade 3, Copenhagen, before the beginning of April.

THE current issue of the *Prescriber* consists wholly of matter relating to spa treatment, and in particular to the development of British spas. The number is freely illustrated with reproductions of photographs and drawings. It includes a short account of medical hydrology by Dr. R. Fortescue Fox, some notes on old-time bathing practice at Bath, by Mr. John Hatton, and a descriptive list of the spas of Great Britain and Ireland.

DR. S. L. BRIMBLECOMBE, of Stoke-under-Ham, Somerset, has been elected a member of the Somerset County Council.

Letters, Notes, and Answers.

Communications intended for the current issue should be posted so as to arrive by the first post on Monday or at latest be received not later than Tuesday morning.

THE telephone number of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is Gerrard 2630 (Internal Exchange). The telegraphic addresses are:

EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology Westrand, London.*

FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westrand, London.*

MEDICAL SECRETARY, *Mediocre Westrand, London.*

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 4737 Dublin), and of the Scottish Office, 6, Rutland Square, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 4361 Central).

QUERIES AND ANSWERS.

"OLD OCTOBER" asks for information or advice in the treatment of a boy, aged 6½ years, who has extensive venous plexuses, superficial and deep, situated on the soles of both feet, buttock, perineum, and the under surface of the penis.

THE TREATMENT OF ASTHMA.

SIR JAMES DUNDAS-GRANT (London) writes that "H. C." (March 7th, p. 488), whose case of asthma has defied "all the usual forms of treatment," has not mentioned whether the nose has been submitted to examination and treatment. If not, he would recommend this in the light of many clinical reports, but particularly of Dixon and Brodie's experiments on reflex contraction of the bronchial muscle excited by stimulation of various sensory areas, described in vol. liv of the *Transactions of the Pathological Society of London*, in a paper on the pathology of asthma. They found the most important reflex from the nasal

mucous membrane, and the upper and posterior part of the nasal septum was the best area from which to produce the reflex. Sources of local irritation—such as hypertrophied middle turbinated bodies, septal deflection, or nasal polypi—should therefore be kept in mind.

DR. W. F. SOMERVILLE (Glasgow) writes: If "H. C." will make use of high frequency currents, condenser couch, 800 milliampères, for ten to fifteen minutes daily, and apply the spray from the resonator full strength to the back and front of the chest, partially undressed, for another ten minutes, he may be able to afford his patient some relief.

INCOME TAX.

Purchase of Practice.

"NOVUS" writes: A, who possesses his own practice, has purchased the practice of B on the terms that he is to hand over to him all proceeds of that practice for two years. Is A liable to income tax on this amount?

*** The position seems to be that A has purchased a practice for £*x*—that is, the two years' receipts. This is a capital sum, and it is not assessable on B, nor is it a deductible expense so far as A is concerned. A is liable to pay income tax on the average earnings of the two practices; he can compute the earnings on the book debt basis if he wishes, either for both practices taken as a whole or for the B practice only if that practice is kept entirely separate from the other; but if he adopts the cash basis, then he must include the whole of the receipts, whether paid to B or not.

Outstanding Debts and Depreciation of Equipment.

"C. T. L.," a medical man, started a dental practice on January 1st, 1924, and inquires whether he should or can include in the account of his income for 1924 (1) outstandings—that is, debts due to him, but unpaid, and the accrued proportion of such expenses as rent, rates, etc., and (2) a charge of, say, 10 per cent. in respect of depreciation of the equipment.

*** (1) Yes; the full gross earnings are not included unless credit be taken for work completed, but not paid for, and the expenses should also represent a full year's charges. (2) Expenditure on repairs and replacements is admissible, but no allowance can be claimed against professional profits in respect of depreciation. It should perhaps be added that after the first few years—say, four or five—the inspector of taxes will probably agree to accept the accounts on a cash basis, but in the early years of a practice the cash result does not represent the true "income."

Travelling Expenses.

"W. H. B." is a full-time medical official and receives a mileage allowance as travelling expenses for the use of his car. Can he claim a deduction in respect of the cost of replacing his car by a new one?

*** We think he is not likely to succeed in such a claim. Presumably the assessing authority has in the past made no attempt to ascertain whether his actual "necessary" expenditure has exhausted his allowance or sought to assess any surplus. That being so, it is difficult for "W. H. B." now to raise the point that the allowance has been insufficient—and that is really what his contention amounts to—because of one specific expense of an abnormal kind.

Rents from the Irish Free State.

"N." asks for information with regard to the British income tax payable on rents of property in the Irish Free State.

*** We are advised that the reason why the Irish tax is not deductible in computing the amount of the assessable income is that that tax is allowed for (in so far as the half taxable rate is concerned) against the tax payable here—in other words, as there is a remedy for the double taxation the tax cannot be treated as an expense. The income is assessable according to the amount "arising" in the previous three years; in our view rents which have been unpaid *and forgone* should not be regarded as having arisen. The only remedy against the delay on the part of the Irish Free State authorities in dealing with the claim would be to commence legal proceedings in the courts at Dublin; "N." would probably be well advised to continue to exercise patience rather than embark on proceedings which might prove expensive.

LETTERS, NOTES, ETC.

FOOD PRESERVATIVES.

DR. G. CLARK TROTTER (M.O.H. Islington) writes to express his concurrence with the hope expressed in the leader on food preservatives, published on March 7th (p. 468), that the regulations will be carried through, and adds: I have not noticed that attention has been drawn to the fact that these draft regulations would appear to be retrograde in one respect (I take it through some inadvertence)—that is, food sold in hotels, restaurants, etc. (see Part 2, section 4, subsection (2), last sentence—"provided that this provision shall not apply where the article of food is sold in any hotel, restaurant, or other such place for consumption on the premises"). At the present time the sale of preserved cream, if sold for consumption on the premises, requires a notice to be placed in a conspicuous position in the room, or a statement on the bill of fare, or some other adequate means of similar intimation (Milk and Cream Regulations, 1912, section V). These regulations are, however, to be revoked by section 15 of the proposed new Order. The result is that any food, including cream, may have excessive preservative added. Considering the large number of persons whose work necessitates their taking their meals in restaurants, it would appear that the proposed regulations need some further modification for the protection of the public who use restaurants, in order to prevent excessive quantities of preservative being added to food. If it is desired to make some special provision in the case of restaurants—for example, as regards colouring matter or even preservatives—some limitations should be enacted, and not merely exemption of such premises. A pleasing feature of the regulations is that power is now sought (section V, 2) to get over a difficulty to which I drew attention in 1922, when we found colouring matter being openly sold at the Dairy Show recommended for addition to milk, although the sale of milk with it or any preservative is illegal.

TRAFFIC DANGERS.

DR. FRED. W. HOGARTH (Morecambe) writes: After about the same number of years on the road, during which I have invariably piloted myself, and much of the time spent on the western road to Scotland I have read with interest and appreciation Dr. Charles Buttar's "Traffic dangers and a remedy" (BRITISH MEDICAL JOURNAL, February 21st, p. 380). Although I am rather afraid that the idea has been brought forward in variant forms from time to time, as far as vehicles are concerned I am unaware that I have ever come across the enunciation of a basic principle for traffic regulation, which included pedestrians, before this. Dr. Buttar has undoubtedly found out the chief objection, and, curiously enough, a very strong one—"It is so simple." We are once more nearing Eastertide, when thousands of motor vehicles, at present laid by, will be brought out for an opening tour. Thousands of beginners will be taking their trial spins also. Easter Monday, when it happens to fall late, is the most dangerous day on the road of all the year, and from about now onwards the pottering genius will be devising fearsome inventions to regulate his own little circle of motorists: bright lamps will flash out in the daytime; blood-red letters will suddenly appear at the rear of cars; waving mechanical arms will perform gymnastics to the regular driver's mystification; but there will be nothing simple about any of the "new rules,' or what will be learned, and conned, for such, by the great army of fine-weather drivers. Those who draft the Road Bill will be smothered with ideas from this kind of motorist. I have been at the scene of many motor accidents, but I can hardly remember one when some driver of a car or cycle did not propound some entirely new and novel rule of the road. The last accident I was present at was due to some misunderstanding between one car overtaking another, and there was a tremendous smash-up, with dozens of cars and cycles stopped short on their way. While rendering first aid to one of the victims, I was amazed to hear a man, with gauntlets on, say to another, "What if he did wave him on? That only means that the other chap was to pass him—*if he could*." Only a short time before that accident I was helping an unconscious motor cyclist into an ambulance. He had whizzed round a corner on his wrong side and run head-on into a stationary landaulette. By this time there were many other cyclists about, and one of them strode up to the only policeman present, who was quite well aware how it happened and had got down lots of particulars in his little book. Pointing to the driver of the landaulette, the cyclist said to the constable, "Look here, have you tested this fellow's brakes? No? Why not? It's your duty in every case like this. They are out of order, I'll bet." So, before the ambulance left, I could see the constable sitting on the front seat while the unhappy driver was running him up and down and wondering what was going to happen next. Is it possible to make any simple rules for large armies of people like this on a crowded road? I can see some of them hugging the wrong side of the road in the hope that they may turn suddenly into the off side of Dr. Buttar's newest car, after the doctor has tried in vain to pass one of these freaks on the proper side.

NASAL DIPHTHERIA.

DR. H. M. EYRES (Richmond, Yorks) writes: Mr. Marsh's note on nasal diphtheria (March 7th, p. 454) suggested to me to send a note of a recent case. A child of 6 was brought to me on February 22nd because of a running nose and poor appetite. Examination of the anterior nares showed only general redness of the mucous membrane. The child was brought again eight days later: there was no improvement; the mucous membrane of one nostril looked grey. A swab was taken and the Klebs-Loeffler bacillus found therein. I visited the child at its home and found that its brother had a patch on one tonsil.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 38, 40, 41, 44, 45 and 46 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 42 and 43.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page *103*.